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Social Science Research in Canada

Stagnation or Regeneration?

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STAGNATION OR REGENERATION?

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FOREWORD

Vaira Vikis-Freibergs, Chairman, Organizing Committee and Vice-Chairman, Science Council of Canada

Francis Bacon, in his utopian book New Atlantis (published in 1627), described a visionary state-supported scientific research establishment called Salomon's House, for which he set forth the following grand aims:

> The end of our Foundation is the knowledge of causes and secret motions of things, and the enlarging of the bounds of Human Empire, to the effecting of all things possible.

René Descartes, in Book 6 of the Discourse on Method, propounded a similarly optimistic and utilitarian view of the future of science. He was convinced that science will eventually generate "an infinity of arts and crafts, enabling us to enjoy without any trouble the fruits of the earth and the good things that are found there." The founders of the Royal Society of London followed in this tradition, seeing the goal of scientific activity as the advancement of knowledge and the betterment of mankind.

Contrary to what it might seem in retrospect, the impact of science and technology on society remained quite limited until the middle of the 19th century. The high expectations produced by promises like those of Bacon led to keen disappointment during the late 17th and early 18th centuries, well expressed in the following quotation from The Idler by Samuel Johnson:

> When the philosophers of the last age were first congregated into the Royal Society, great expectations were raised of the sudden progress of the useful arts; the time was supposed to be near when engines should turn by perpetual motion and health be secured by the universal medicine; when learning should be facilitated by real character and commerce extended by ships which could reach their ports in defiance of the tempest.
>
> But improvement is naturally slow. The Society met and parted without any visible diminution of the miseries of life. The gout and the stone were still painful, the ground that was not plowed brought no harvest, and neither oranges nor grapes would grow in the hawthorn. At last, those who were disappointed began to be angry... and...the philosophers felt with great sensibility the unwelcome importunities of those who were daily asking, "What have ye done?"

Those words, written in 1759, show the breadth of practical problems that science, once it became accepted, was expected to solve. Expectations were high, and they applied equally to every branch of science: physical, biological, and social. Early disappointment was soon dispelled in the physical and natural sciences, but Johnson's remarks are still appropriate in describing the relationship between the social sciences and the general public. No-one doubts or questions any more the capacity of the physical and biological sciences to produce practical applications, even though some are beginning to question whether all of these are as beneficial to mankind as was originally hoped. In many domains, the complaint is now that science has done too much, too fast, and not too little. The public, having first felt respect for the scientific expert as a sort of modern magus, master over the forces of nature, started to wonder whether the scientist was but a sorcerer's apprentice, able to put forces in motion, but unable to foresee all the consequences that could follow.

As for the social sciences, they are in a double bind. Those that lag in development a century or two behind the physical and natural sciences are still at

the stage at which, in the public eye, they promise much but deliver little. Those that have findings to offer that can be and are applied in formulating public policy may be accused of misusing scientific knowledge and expertise and of endangering the civil liberties of the population.

The social sciences, by their very nature, play a double role at the interface between science and society. Their object is not only to study society using the scientific method, but also to question the aims of such study, the methods employed, the interpretation of results, and the use to which conclusions are put. Furthermore, to the extent that any one society is different from any other, social science findings are harder to generalize and to transfer from one setting to another.

The general problems of the social science disciplines are compounded in Canada by infrastructures that are barely a few decades old, a research community that, being largely imported, has not been fully committed to tackling peculiarly Canadian problems, and the lack of an overall national commitment to their development.

Social science researchers, more than other kinds of researchers, depend on public funds for the support of their research. Yet when that public asks of them, "What have ye done?", they are unable to produce a list of visible achievements and contributions. Some of them even resent the very question, considering that their purpose is well enough served by criticizing the existing order of society. Others point out that their contributions are indeed valuable, but that only other social scientists with the same ideological bent or research paradigm are qualified to understand their answers.

Like it or not, in the current climate of economic crisis and mounting unemployment, social scientists will have to learn to answer questions about their place in the priorities for public spending. They will have to interrogate themselves and clarify to their own satisfaction where they fit into the general scheme of things. They will also have to learn to communicate to others some sense of their existing or potential usefulness to society. If they fail to do so, public funds for social science research will be granted more and more reluctantly.

In October 1984, The Science Council of Canada organized a two-day conference on the social sciences entitled, Social Science Research in Canada: Stagnation or Regeneration. Its main aim in calling together the conference was to allow social scientists to discuss the status of their disciplines in the Canadian context and to evaluate the nature of their relationship with the decision makers and the general public who are, or should be, the ultimate users of their findings. A deliberate effort was made to include among the speakers individuals with experience in applied as well as academic settings and representatives of a variety of viewpoints and persuasions. The Council hopes that the exchange of ideas generated by this conference will contribute to the regeneration of social science research in Canada.

THE SCIENCE COUNCIL OF CANADA AND THE SOCIAL SCIENCES

Jean-Pascal Souque, Science Adviser, Science Council of Canada

The Science Council of Canada was created in 1966 to evaluate Canada's resources, needs, and potential in terms of "science and technology." This familiar term, however, is vague -- which sciences are included? Does the term include only the pure and applied sciences, or does it also cover the social sciences? There are answers to these questions, but before I turn to them, I would like to review briefly the historical conditions surrounding the birth of the Science Council and the establishment of a Canadian system of science and technology.

Until the Second World War, Canadian efforts in science were small-scale. The country established its first national scientific institutions relatively late: the Geological Survey of Canada in 1842, the experimental farms in 1886, the Biology Commission in 1898, and the National Research Council (NRC) in 1916.

The NRC was created during the First World War to coordinate applied research activities and the development of universities and government organizations. It took on a research function at the beginning of the Second World War, a role that would increase over the years. In the first half of the 1960s, the NRC not only managed its own research laboratories, but financed research in the universities and gave advice to the government by reporting to the president of the Privy Council committee on industrial and scientific research.

For many years the federal government was the principal source of research funding in Canada. This led to a commission of inquiry (the definitive Canadian institution) into its role. The 1963 report of the Royal Commission of Inquiry on Government Organization (or Glassco Commission) gave a strong boost to the organization of science in Canada and devoted one entire section to pure and applied research. It underlined the important commitments of the government in scientific research through various federal ministries and agencies and through the research group for defence.

The report also pointed out that these government bodies were not subject to evaluation or supervision and that there was no particular official charged with advising the prime minister and the cabinet on matters of science and technology. The Commission considered that the establishment of an appropriate agency for consultation was extremely important. It therefore recommended that a minister (preferably the prime minister) take on responsibility for science policy and the coordination of pure and applied scientific research. It also proposed setting up a science secretariat to advise the cabinet and a science council, composed of members chosen from all the scientific disciplines and from different sectors, to provide support for the secretariat.

At the invitation of Prime Minister Lester B. Pearson, C.J. MacKenzie, the chancellor of Carleton University, developed concrete recommendations to carry out the work of the Glassco Commission. As a result, on 30 April 1964, the prime minister presented his report in the House of Commons and announced the creation of a science secretariat, reporting to the Privy Council. The mandate of this body would be to assemble and analyse information on the government's science programs and on the relationships of these programs to other scientific work done elsewhere in Canada.

Two years later, the Science Council was formed. This involved re-evaluating the role of the NRC, which had had until then a triple role: running its own laboratories, financing university

research, and advising the government. It had become apparent that the NRC could not give objective recommendations to the government on the activities of other sectors of the scientific community. This was publicly admitted by the prime minister himself, in his speech inaugurating the Science Council in July 1966.

Before we look at this inaugural session, I would like to point out that it was C.M. Drury, then minister of industry and president of the Privy Council's committee on scientific and industrial research, who proposed the institution of the Science Council of Canada to the House of Commons on 17 March 1966. According to Mr Drury, this advisory council would identify and define the long-term objectives for science in Canada, propose appropriate means to realize them, and examine the division of responsibilities among industry, the universities, and the government in this area. The Science Council, said Mr Drury, would not have to concern itself with day-to-day problem-solving, but would elaborate basic principles and a philosophy for action that would guide the evolution of science in Canada.

The act establishing the Science Council of Canada was adopted by the Senate and received royal assent 12 May 1966. On 27 May 1966, Omond Solandt, chancellor of the University of Toronto, was named chairman, and Roger Gaudry, rector of the University of Montreal, vice-chairman. The inaugural session was held on 5 July 1966 and the speech given by prime minister Pearson revealed what the government expected of the Council. He also explained how the relationship between the natural and the social sciences was to be considered.

> I urge you to join with the humanists and others, who approach knowledge from a different direction, to ensure together that adequate bridges are established between our pure and applied natural sciences and our social sciences and humanities. For wisdom, surely, must be the composite of all knowledge and all experience.[1]

Were these bridges actually established? The answer depends on which organizational level of the Council is examined. At the level of Council membership, the links have been minimal. Since the creation of the Science Council, all the members have been recruited from universities and from industry, from the pure sciences, engineering, medicine, and industry. The only discipline represented by the Social Science Federation of Canada from which several members have been named to the Council is psychology. (Psychology is also the only social science discipline in which researchers may have their work financed by the Natural Sciences and Engineering Research Council.)

For all practical purposes, therefore, few representatives of the social sciences have participated in the deliberations of the Council. It is only recently, with the nomination of our current vice-chairman, the former president of the Social Science Federation of Canada, that a direct link has been established between the social sciences and the members of the Science Council.

At another level, namely the topics of the Science Council's studies, it is clear that, apart from psychology, the social sciences have not been the subject of much Council research. The Council has published research in disciplines such as the agricultural sciences, biology, chemistry, mathematics, water resources and earth sciences, all of which come from the natural sciences and engineering.

However, all the studies and reports of research on science and technology policy published by the Science Council since its creation have used data generated by the social sciences and methods developed by social science disciplines. At this level, bridges have indeed been constructed.

To establish their policy recommendations, Council and committee members have drawn on data assembled by the research staff in the following areas: economics, geography, law, education, demography, public administration, political economics, political science, international law, management studies, urban studies, anthropology, and the history and philosophy of the sciences. It is this connection with the social sciences that has prompted the Council to look more closely at the status of these disciplines in Canada.

The educational background of the research staff of the Science Council, composed of over a dozen science advisers, research associates, and research assistants, also reflects the interdisciplinary character of the expertise that Council studies draw on. Most members of the research staff have a primary background in sciences, combined with secondary studies in some social science area.

However, although the Council staff had the necessary expertise to develop strategies for original research (deliberative investigation, for example, in the context of the science education study[2]) or to use tested methods (surveys and case studies), its small size requires that it collaborate with high-level social science specialists to ensure the quality of its work.

Another link that the Science Council has with the social sciences is the fact that one of the sources (if not the principal one) of information on which the studies and reports of the Council are based, is Statistics Canada. The success of this organization depends largely on its expertise in the social sciences, which allows it to plan the collection of data and their treatment in order to satisfy its many and diverse users.

Finally, the Council does not limit itself to gathering and publishing information. It also negotiates between the various Canadian groups affected by science and technology policy. It establishes the appropriate conditions for developing consensus on social questions with a science or technology dimension and develops strategies to follow up on the consequences of its work. All these activities require active and reflective work rooted in the domain of knowledge generated by the social sciences.

In conclusion, even though the social sciences per se have not been studied by the Science Council and although they are not fully represented in the Council's deliberations, they have already played and will continue to play an essential role in allowing the Council to gather and analyse the data on which it bases its recommendations. It is therefore fitting that the Council has recognized the importance of the social sciences in Canada in the elaboration of science and technology policy, assessed their situation, and invited reflection on their role in public- and private-sector decision making.

Notes

1. Science Council of Canada, Annual Report (Ottawa, 1967).

2. Science Council of Canada, Science for Every Student, Report 36 (Ottawa, 1984).

BACKGROUND PAPERS

Social Science Research in Canada: Stagnation or Regeneration, John E. Trent, Professor, Department of Political Science, University of Ottawa

The Background

By any standard, social science is a major enterprise in Canada.* In the universities, social science now accounts for 40 per cent of the faculty, 50 per cent of undergraduate degrees, and 37 per cent of PhDs.

Approximately $2.2 billion of the $5.4 billion spent annualiy on universities is spent on social science. University scholarship supports approximately 130 social science journals and, at one level of activity or another, 170 centres and institutes. In addition, there are social science departments in community colleges and CEGEPs, and teachers of social science in high schools. Some 10 off-campus non-profit research institutes, and approximately the same number of commercial operations, have also been created. Canada spends another $600 million a year for R&D and related scientific activities in the social sciences. Thus social science is a $3 billion-a-year industry.

There is general agreement about the importance of social science knowledge to a modern society such as Canada's. Among the issues requiring social science research are social adaptation to technological change, aboriginal rights, constitutional reform, industrial relations, linguistic policies and ethnic relations, the labour market, labour productivity, women's rights, family disintegration, aging society, inflation and unemployment (stagflation), youth unemployment, federalism, French-English relations, Canadian-American relations, Canada's international role, criminology and law reform, economic and trade policy, economic ownership, poverty and the redistribution of wealth, cultural creativity, and nationalism versus regionalism. The list could go on and on.

At the international level, social science research is needed on Third World development, conflict resolution and disarmament, terrorism, trade barriers and international competition, hunger and inequality, population, energy and natural resources, and international relations.[1]

Observers have commented on the rapid pace, vast scale, and interdependence of current social transformations. They have clearly stated the need for an understanding of social change so that crises can be avoided in the transition to a postindustrial society. The quality, effectiveness, and compassion of the response to social change will depend to a large extent on an informed and tolerant public and knowledgeable decision makers. They, in turn, are limited by the competence of management systems and policy-making

* The term social science refers to the systematic study of human relationships and behaviour. In Canada, economics, sociology, anthropology, archaeology, political science, psychology, history, geography, law, administrative sciences, education, industrial relations, peace research, regional and urban studies, home economics, area studies (Latin American, Caribbean, African, European, Soviet and Eastern European, and Asian studies), demography, criminology, socio-linguistics, and communication are recognized as branches of social science by the Social Sciences and Humanities Research Council and represented by the Social Science Federation of Canada. Other subdisciplinary or multidisciplinary fields could be added to this list.

institutions; by the quality of debate on such basic values as justice and equality, freedom and order; and by the viability of systems of analytical feedback. At each link in the chain, modern society must look to the social sciences for assistance -- although, as one writer put it, "Social science research will light up the road ahead; it will not build it."[2]

There is justification for the claim that social scientists in Canada and abroad have already been lighting the road. A recent paper prepared for the Ministry of State for Science and Technology provided the following summary of some of the contributions of social science during the past 50 years, both as a technical instrument and as an intellectual foundation.[3]

- In the private sector, the social sciences have contributed econometric forecasting, demographic projections, standardized vocational testing, behaviour modification, user/machine systems design, government relations techniques, consumer research, market testing, and management consulting.

- In government, the social sciences have contributed social indicators, the system of national accounts,[4] demography, index construction, survey research for planning and monitoring welfare and economic programs, fiscal and monetary theory, political and legal theory and organization, public management techniques and analysis, and evaluation procedures.

- Social sciences have developed aids to decision making such as information and analytical apparatus for evaluating alternatives; insights, concepts, and perspectives for clarification of goals; organizational theories and frameworks; analyses of unanticipated and undesirable consequences of policies; empirical grounds for analysing opportunity costs and trade-offs; intellectual discipline and rigour for the bargaining process; computer-based decision aids; early warning systems; and policy simulations, forecasts, and models (for example, in energy, impact assessment and econometrics).

- In forming intellectual foundations, the social sciences have contributed to what Keynes has called "the gradual encroachment of ideas," whereby generalizations, theories, concepts, Weltanschauungen, and constructions of social reality gradually percolate through an informed public and help shape the cognitive framework of policy makers. Concepts such as zero-sum games, optimal coalition formation, the hierarchy of human needs, the iron law of oligarchy, overkill, unintended consequences, alienation, anomie, ownership of the means of production, the two-step communications process, the social system, and the feedback process have been derived from the social sciences. Writers such as Plato, Aristotle, Hobbes, Locke, Montesquieu, Burke, Rousseau, Machiavelli, and, more recently, Marx, Freud, Durkheim, Keynes, Galbraith, and Friedman have contributed to our knowledge of human society.

Within Canada, social scientists make contributions as thinkers on modern philosophy and ethics, teachers, members of royal commissions, government employees, researchers in institutes, political economists, policy analysts, social researchers, politicians, party workers, public administration experts, consultants, and public commentators.[5] Yet despite the size and significance of the contributions of

social science in Canada, despite the fact that most problems facing the country have important, if not crucial, social dimensions, and despite the considerable investments that were made to build up the social sciences in the 1960s, financial support for the social sciences has declined in absolute and relative terms since 1971. (A Science Council discussion paper, Statistical Profile of the Social Sciences in Canada, provides a detailed examination of social science infrastructure and funding.)

At about the same time as the funding for the social sciences started to decline, relationships between social scientists and those who funded and used social science research started to deteriorate. The relationship between power wielders and intellectuals has always been antagonistic.[6] But in postwar Canada there was at least an uneasy truce as academics, politicians, and business leaders agreed on the need to develop education, expand the university system, create research funding councils, and develop the social sciences. In recent years, however, there has been more recrimination than agreement, involving disputes over the objectives of and the means for developing social science research. The arguments on both sides can be summarized as follows.

Government officials and business leaders claim that social science research is too academic and too little concerned with national issues. They complain that the available social science research does not help managers and politicians solve the problems confronting them. Often the research is out of date in content and methodology. Critics point to shortcomings in basic data, knowledge, theory, and conceptualization.

Others argue that the social sciences in the university are fragmented, making team and interdisciplinary research exceedingly difficult, and that the demand for "independent research" is often simply an excuse for narrowness, subjectivity, ideology, individualism, and academic isolation. Social scientists are also criticized for dealing with esoteric and irrelevant subjects; for providing research and advice that is contradictory, imprecise, and impracticable; and for failing to produce creative ideas in times of economic crisis. In some instances, critics' earlier hostility toward social scientists has been replaced by indifference.

For their part, social scientists maintain that many of the weaknesses of social science research are the result of financial resources insufficient to produce the demanded output. They maintain that there has not been enough funding to sustain both fundamental and applied research and that financial supporters have never recognized the relative youth of the social sciences and the need to give it time to develop. They also point to the immaturity and underdevelopment of research infrastructures in Canada. Further, social scientists believe that governments, businesses, and other users of research are not even aware of what research and policy advice is available; that social science assistance is badly used; and that empirical evidence and analyses are often ignored for "political reasons." In other words, those who complain about social science research are often "killing the messenger" who brings news of their own failings. Critics should understand that social science research can only provide enlightenment, not solutions.

Finally, social scientists insist that their disciplines are unique. Because social science research often criticizes

the status quo, it is politically sensitive. It provides much of society's intellectual base and is the major source of knowledge about ourselves, which, unlike information from the natural and life sciences, cannot be imported from somewhere else. For these reasons society must support independent research, not just applied research, because the latter will wither without the former.*

The Conference

The size and significance of the social science research effort in Canada, the recent cutbacks in financial support, and the deteriorating relationship between social scientists and those who support and use the results of research -- these factors led the Science Council to organize a conference on social science research in Canada. In a recent speech, the Council's Chairman, Dr Stuart Smith, stressed the Council's concern for the health of the social sciences. He noted that the Council has played a leading role in persuading Canadians to embrace the opportunities offered by high technology while preparing for the social changes that will accompany the move to an information society. The Council also recognizes that, despite the high-technology revolution, or even because of it, most Canadians will be employed, not in manufacturing, but in one of the service industries. Both these socioeconomic transformations will require high levels of social science competence. But Dr Smith questioned whether current social science research is relevant to the problems facing Canadians. He concluded that social scientists must strike a balance between studies leading to policy and studies leading to knowledge, and that they must define this balance collectively.[7]

If Canada has indeed made a sizable investment in the development of the social sciences, and if there is general recognition of the significance of social science research for modern society, then one reason for the recent decline in support for social science research must be that social scientists, as well as those who support and use the results of research, are unclear about the facts of the situation and uncertain about ways to advance the social sciences. It is unlikely that there will be much improvement in the health of the social sciences until there is more agreement about how and why social science research should be supported and greater recognition by all parties of each others' legitimate needs and interests.

The objective of the conference is to clarify the relationships among those who perform, those who support, and those who use social science research, in the hope that greater understanding will lead to consensus and cooperation. Some research has been done on the use of social science research for public policy, but the interrelationship of performers, supporters, and users has not been analysed.[8] In an earlier period, most social thought and research was a matter of individual initiative. More recently, social science research has become complex and costly, and therefore more dependent on government support and on public and private consumers. As well, Canadians depend more on university research than do people in advanced countries that have a diversified infrastructure of research institutes and foundations, and in which more research is done in the private and public sectors. Today, there are many more actors who influence research support, including

* The positions taken by supporters and detractors of social science research are not as clear-cut as the above outline might suggest. Many social scientists recognize the weaknesses of their discipline, just as many individuals in the public and private sector support social science research.

provincial and federal prime ministers and deputy ministers, education officials, university administrators, funding council officers, institute and foundation directors, corporate and union executives, government managers, directors of national and regional associations and community organizations, and, of course, the researchers themselves and their representative learned societies and federations. Even the public has its influence, at least to the degree that politicians and public servants think the public does or does not support additional funding for the human sciences and the arts.

Taking these factors into account, this conference has been structured to be both interdisciplinary and intersectorial. A cross section of researchers and research managers has been invited to participate, along with people in government, business, unions, national organizations, and universities who are responsible for research support policies and for the relationship between social science research and its consumers and supporters.

The conference organizers wanted to bring these concerned individuals together under the most propitious circumstances possible and have invited as panelists and speakers people who have been active on both sides of the fence, as researchers creating social science knowledge and as decision makers in the public and private sectors. The organizers hope that participants will "shed more light than heat" on the problems facing the social sciences in Canada and replace recriminations between researchers and decision makers with a constructive understanding of each others' needs and perceptions. As well, they hope that participants will make proposals for improving the production and use of social science research.

Because no basic research exists on the subject, the conference organizers asked panelists to develop short expositions, based on their experience, analysing the relationships among the doers, supporters, and users of research and suggesting ways for improving both that relationship and the research infrastructure. Using this approach, and with the contribution of all conference participants (half the time in each session will be reserved for discussions that will be put on record), the organizers will develop hypotheses concerning the health of the social sciences and proposals for follow-up research by the Science Council to design a policy for social science research in Canada.

Because modern society depends on effective social research and because so much research has to be publicly supported, the principal questions to be explored at the conference are whether conditions permit social scientists to produce fundamental research about society and whether social scientists can provide the policy-oriented research required by major social institutions. From these two basic questions flow several others. What conditions are required for social scientists to fulfil their various roles? How can decision makers be made to recognize the importance of independent research in making policy-relevant research possible? How can the academic research community be persuaded that it has an obligation to provide socially relevant research? What are the conditions for the effective production and use of social knowledge?

The conference will be organized around five panels:

Panel 1: Requirements for Creating Effective Social Knowledge and Concepts

a) What is known from theory and practice concerning the best conditions for developing social research?

b) What is meant by effective social knowledge and social concepts?

c) What turns research into effective social knowledge and concepts?

Panel 2: The Social Knowledge Requirements of Society: How Well Fulfilled?

a) What categories, types and sectors of social knowledge does society require?

b) How well has research served the different categories, types, and sectors of social knowledge?

c) How well do the social sciences provide research for decision and policy making?

d) How could social science research better provide knowledge, concepts, and expertise for social problem solving and decision making?

Panel 3: Impediments to the Creation and Use of Research for Social Problem Solving

a) What are the impediments to the creation and use of research for solving social problems? Do the social sciences have the means, the methods, and the theory to solve these problems?

b) What are the impediments to the use of social science research? Are the decision makers and the public aware of what information is available or useful? Do administrators use the products of research in the best possible way?

c) How could social science research be better conceived and organized and how could its findings be better communicated to users?

Panel 4: Resources, Requirements, and Potential for Social Science Research in Canada

a) Does the social science research community in Canada have sufficient resources for research (personnel, time, funding, institutions, and so forth)?

b) What resources would improve the effective production of social science research for public consumption?

c) What does social science research in Canada need if it is to fulfil its potential?

d) To what degree are the social sciences equipped to provide knowledge and concepts for public consumption and decision making?

Panel 5: Issues Requiring Social Research to the Year 2000

a) What are the major issues that will require social research?

b) What kinds of research and knowledge are required?

c) What, if any, changes in social science production are required to ensure that research on future issues will be available?

To recapitulate, the objectives of the conference are:

- to consider the various elements and actors in the production and consumption of social science research in terms of a structured relationship that can be improved through effective analysis;
- to analyse the problems associated with the effective production and

consumption of social science research for dealing with the major questions confronting society;

- to add to the knowledge base on which the Science Council could develop a policy for social science research.

Some Points for Discussion

As the organizers prepared for the conference, several possible explanations for the diminishing support and the worsening relationships among the doers, supporters, and users of social science research came to light. These explanations, which may or may not agree with the findings of the conference participants, are outlined here for discussion only.

The decline of the social sciences is likely to be the result of a number of influences that have had a cumulative effect. First, there are the historical factors. The last two decades have seen the development of a new phenomenon -- national science policies. Prior to this period, scientific research and other intellectual pursuits were either subject to benign neglect or treated as cultural activities that were worth supporting for their own sake. But as leaders in advanced industrialized countries came to recognize science and technology as engines of economic growth and competitiveness, they came to see research and development as vital to economic achievement. It became necessary for governments to become involved in tailoring knowledge output to perceived knowledge needs. Canada has been slower than other OECD countries in developing a science policy. Recent years have seen a struggle between the government's attempts to orient research toward national objectives and strenuous efforts by the scientific community to maintain control over the allocation of resources. What may be taking place is a breakdown of an earlier consensus on who should be making decisions about research priorities and on the criteria that should be used.[9]

The second set of factors are environmental. The economic recession, increased international economic competition, and pressure on government budgets have influenced attitudes toward the social sciences. In their attempts to stimulate economic growth, governments have generally looked for a "quick technological fix." Social and cultural issues have been neglected, including social science research and even the social component of economic growth. Governments have also been forced to allocate scarce funds to "urgent priorities" and to large, insistent groups. Academic social science research seldom falls into any of these categories.[10] At the same time, the more governments are financially squeezed, the more they demand policy-relevant research on national issues, and the less willing they are to fund basic research. When social science research is considered, it is judged by the utilitarian criteria that are applied to the natural and health sciences. Thus, the social sciences are expected to produce perceptible economic benefits or to help governments achieve goals and solve problems. Because of its diffuse and often imperceptible effects and the difficulty of measuring its rate of return, social science is often found wanting according to this quantitative approach.[11]

Because social scientists were relatively well treated, even spoiled, during the expansionist period of the 1950s and 1960s, they were slow to learn about the importance of lobbying. Ironic as this may seem (given their subject matter), they never learned how to convince government and the public about the value of social science as an intellectual foundation for society and as an instrument of change.[12] This situation was aggravated by two trends in social science research. The growth

of the positivist and behavioural schools further fragmented the disciplines and suppressed normative and value considerations. This development made it difficult to take a holistic approach to the study of social problems without developing new methodologies and new institutional structures, especially research institutes, to rejoin what science had divided. Further, the nature and reward structure of academic communications has encouraged the publication of narrow, specialized papers aimed primarily at fellow researchers. Moreover, published reports of contract research on policy issues are rarely circulated widely. Thus the impression persists that social science research does not deal sufficiently with relevant public issues and therefore does not deserve increased public support at a time when there are so many other priorities.[13]

A third source of misunderstanding may be the tendency to compare social science (like all other things) in Canada to its counterpart in the United States and to find it wanting. This practice fails to take into consideration the greater development of the infrastructure for the social sciences in the United States and the fact that American social scientists outnumber those in Canada about 20 to 1. Despite the growth of the profession in recent years, Canada still has barely enough social scientists for the number of new areas of research requiring their attention. As Karl Deutsch has estimated for political science:

> The grand total for 1977, conservatively estimated, amounts to eight times the subject matter of 1952, twice the methods, and perhaps 20 times the data....On the average, the political scientists of today are spread out about four times as thinly over the sources of evidence, research methods and subject matter which they are supposed to cover, than were their predecessors of 25 years ago....[14]

For their part, Canadian educators and social scientists have failed to recognize the need for priorities and for concentrating resources. Generally speaking, the social sciences are spread out thinly across Canada in small departments that have been called "miniature replicas" of the large Canadian universities and American departments, but without their resources, markets, or rates of production. Also, because of their comparative youth, the social sciences in Canada are still much more concerned with the requirements of education (teaching, departmental structures, disciplinary associations and journals, and administration) than with those of research (interdisciplinarity, problem orientation, research institutes, liaison with users, and specialized comparative networks and journals).[15]

There are other differences between Canadian and American social science. In Canada the research is university-based, although the research funding comes from the government.[16] Had there been greater recognition of this fact, stronger efforts might have been made to devise forms of cooperation among users, supporters, and performers of research. Moreover, in business and in labour unions there is little use of Canadian research because of the "branch-plant" attitude of Canadian industry. Even in the natural sciences there are very weak links between universities and industry.[17]

A fourth factor involves perception. The social sciences do not have professionals (apart from psychologists) who bridge the gap between social scientists and consumers of social science research -- a function performed by doctors in the life sciences or by engineers in the natural sciences. As can be imagined, this shortcoming has

had a profound effect on the public's perception, use, and recognition of these disciplines. In the social sciences there has arisen a still-to-be-explained love/hate relationship between researchers and consumers, whether they be former social scientists or general administrators. This problem is related to the one discussed previously, whereby the products of social science research often percolate into public use in a manner that robs the original source of any credit. Everyone is an expert on social issues.

It may be that there is virtually no structured relationship among the doers, supporters, and users of social science research. Social scientists in the universities are isolated even from each other and the universities themselves have few regular research links with the public. Administrators in government, business, and private research institutes often do not have or cannot establish adequate links with academic researchers and are forced to turn instead to an inadequate old-boy network of inferior researchers. The result, of course, is often poor research design. Those who fund research are regularly accused of failing to consult the research community and of aberrant and cumbersome funding policies. In general, interrelationships are very limited, and no responsibility for either structuring the relationships or for developing the social sciences in Canada has been allocated.[18]

The problems facing the social sciences in Canada are numerous, therefore efforts to find their solutions must be numerous as well. In a recent report to the French government on the same subject, Maurice Godelier named eight general conditions for the renewal of the human sciences in France. They included reconstructing the research infrastructure; sharing responsibilities among all those involved in research; promoting the movement of people and ideas to create innovation; simplifying the administrative and financial management of research; diversifying the centres of research; realigning research in accordance with a re-evaluation of needs; providing for international comparisons of research quality; and involving all elements of society, not just researchers, in the development and sharing of scientific knowledge.[19]

The suggestions for analysis made in this paper lead to many of the same conclusions. Long-term commitment and effort are needed to improve the conditions for social science research in Canada. These improvements will involve restructuring relationships between all those associated with research; developing infrastructures and institutions; thoroughly analysing research conditions and applications that are specific to Canada; refining research methods and communication; and diversifying research.

Notes

1. Several recent listings of problems requiring social science research can be found in: Social Science Federation of Canada, Strategic Research: Report to the Social Sciences and Humanities Research Council (Ottawa, 1982); Royal Commission on the Economic Union and Development Prospects for Canada, Research for the Commission on Canada's Future: A Progress Report (Ottawa, 1984); and Ministry of State for Science and Technology, Commissioned Papers and Summary Report; Canada Tomorrow Conference (Ottawa, 1984). For instance, the Summary Report reported on four themes, three of which dealt with the social impact of technological change, including:

   - the possible loss or downgrading of jobs;

- the impact of increased productivity on the job market;
- the mismatching of skills and jobs;
- appropriate education, training, and retraining;
- risks to health and safety;
- effects on the home environment;
- changes to the form and substance of industrial relations;
- ways of developing and using new technologies;
- the diffusion of innovative changes;
- the need for social "safety nets";
- effects on particular groups concentrated in occupations that are subject to change;
- the need to distribute the costs of adjustment;
- the roles of industry, government, labour, and academia in preparing for social transformations.

2. Organisation for Economic Co-operation and Development, Social Science Policy: France (Paris, 1975), 229.

3. Michael J. Kelly, A Policy Framework for the Social Sciences, (Ottawa: Ministry of State for Science and Technology, 1983).

4. One economist, when asked what his profession had contributed to the GNP, replied, "We invented it."

5. For an overview of the contributions of the social sciences, the reader may consult: Brendan Gail Rule, "Objectives of Social Science Research: Its Perceived Relevance and Appropriate Expectations," in Relevance of the Social Sciences, Science Policy Round Table, Cahier 9 (Ottawa: Social Science Federation of Canada, 1982); Farina and M. Kelly, Innovation Policy and the Social Sciences (Ottawa: Ministry of State for Science and Technology, 1983); Kenneth Prewitt, "Assessing the Significance of Social Science Research," in Outlook on Science and Technology, Source Material, volume 2 (Washington: National Science Foundation, 1981), 553-559; R. McAdams, Neil J. Smelser, and Donald J. Treiman, editors, Behavioural and Social Science Research: A National Resource (Washington: National Research Council, National Academy Press, 1982).

6. One early example of this antagonism, dating from 81 B.C. in China, is recounted in The Dispute over the Salt and the Iron (Dispute sur le sel et le fer [Yantie lun]) (Paris: J. Lanzmann & Seghers, 1978). As Georges Walters notes in his introduction, "In the Western Palace, lofty pinnacle of power, above the swarming plowmen and pedlars, we find, mounted on the high horses of their convictions, the princes who think and the princes who govern, otherwise two groups of obstinate gods whose dispute will only finish with the end of mankind."

   More recently, one of the great intellectual opponents of Napoleon (and then of the Bourbons) wrote, "Scholars, properly speaking, are rarely hurt by those in power, even by unjust leaders. They only hate real thought. They like science well enough as an instrument for those who govern, and the arts for the public." (Benjamin Constant, Principes de politique (Paris: Chapter IV, 1815).)

7. Stuart Smith, Speech to the Annual General Assembly of the Social Science Federation of Canada,

Ottawa, May 17, 1984 (Ottawa: Science Council of Canada, 1984).

8. Most of the research on the use of social science in public policy has been carried out by American and OECD researchers. No study has yet been carried out in Canada. The following studies offer interesting findings and hypotheses: Yogesh Atal, "Using the Social Sciences for Policy Formation," International Social Science Journal 2 (1983): 367-377; Nathan Caplan, "Social Research and National Policy: What Gets Used, By Whom, For What Purpose, With What Effects," International Social Science Journal 1 (1976): 198-214; S.C. Dubé, ed., Social Science and Social Realities: Role of the Social Sciences in Contemporary India (Simla: Indian Institute of Advanced Study, 1976); Charles Lindblom and Daniel Cohen, Usable Knowledge: Social Science and Social Problem Solving (New Haven: Yale University Press, 1979); Herbert Jacobs and Michael Lipsky, "Outputs, Structure and Power," Journal of Politics 30 (1968); J.G. Paolillo and Warren Brown, "How Organizational Factors Affect R&D and Innovation," Research Management 17 (1974): 29-33; Lawrence E. Lynn, ed., Knowledge and Policy: The Uncertain Connection (Washington: National Academy of Sciences, 1978); Martin Rein, "Methodology for the Study of the Interplay between Social Science and Social Policy," International Social Science Journal 32 (1980): 361-368; Richard Simeon, "Studying Public Policy," Canadian Journal of Political Science 9 (1977): 550-571; Carol Weiss, editor, Using Social Research in Public Policy Making (Lexington, Massachusetts: D.C. Heath and Company, 1977); idem, "The Many Meanings of Research Utilization," Public Administration Review 5 (1979): 426-431.

   Atal (op. cit.) has suggested a matrix for analysing the relationships between types of knowledge and types of user (see Figure 1). He notes that each category could be subdivided further.

9. Paul Lamy, "Policy and the Social Sciences," Policy Options 2 (November 1981): 38-40. On universities, research and society, see the Hon. Marc Lalonde, Speech to First Joint Meeting of the American Council on Education and the Association of Universities and Colleges of Canada, Toronto, Oct. 13, 1983 (Ottawa: Department of Finance, 1983).

10. John E. Trent, "Scientific and Professional Issues of the Social Sciences in Canada in the 1980s: The Unloved Middle-Brother Syndrome," J. Trent and P. Lamy, editors, Global Crises and the Social Sciences: North American Pespectives (Ottawa: University of Ottawa Press, forthcoming).

11. Kelly, op. cit.

12. For instance, social scientists in Canada have never convinced the federal government to support such a global study of the social sciences as that recently completed in France -- or to arrive at the same fundamental propositions:

    "Research in the social sciences could never become a sort of social engineering able to produce miraculous changes on the contradictions of the real world. Any assertion of this type can only create and maintain illusions that will cost a lot in practice.

"In every case, with regard to the need for social research, one must acknowledge the principle that only the academic community can translate into objectives for research the problematic realities that society, in all its aspects -- the State, private enterprise, political parties -- asks it to analyse." (Maurice Godelier, Les sciences de l'homme et de la société en France: Analyse et proposition pour une politique nouvelle, La documentation Française (Paris: Ministère de la recherche et de l'industrie, 1982), 29. Author's translation.)

13. Social scientists have been aware of some of these problems for some time. See John E. Trent, "Internationalization? Interdisciplinarity? Development? The Social Sciences from 1952 to 1977," A Report on the 25th Anniversary Round Table of the International Social Science Council, in Stein Rokkan, editor, A Quarter Century of International Social Science (New Delhi: Concept Publishing, 1979).

14. Karl Deutsch, "Political Science: Major Changes in the Discipline," in Stein Rokkan, op. cit., 171-172.

15. For a recent general analysis of the strengths and weaknesses of social science research for use in policy, see Trent and Lamy, op. cit.

16. Two recent publications on research funding are Jim Thomas, "Federal Funding and Policy Research," Knowledge: Creation, Diffusion, Utilization 3 (March 1982): 339-369; Peter Leslie, Canadian Universities: 1980 and Beyond (Ottawa: Association of Universities and Colleges of Canada, 1980).

17. On the general issue of the perceived relevance of universities, see Hon. Marc Lalonde, op. cit.

18. A summary of policy initiatives and responsibilites in the social sciences can be found in Paul Lamy, op. cit.

19. Godelier, op. cit., 51.

Figure 1: Social Science Knowledge and its Users

	Type of Knowledge					
Type of User	General orientation	Theory	Methodology	Research findings	Interpretation of findings	Specific recommendations
1. Specialists						
2. Colleagues from other disciplines						
3. Students						
4. Administrators, planners and policy makers						
5. Public						

A Statistical Profile of the Social Sciences in Canada, Robert Davidson, Social Science Federation of Canada

It has become commonplace to speak of a communication gap between the social science community and decision makers. The social sciences are becoming increasingly marginal in relation to the scientific challenge of our age. Attempts to show the social contributions of this scientific field come up against a stumbling block: the lack of knowledge and understanding about the social sciences. This state of affairs presents an obstacle to communication between the social science community and decision makers.

This paper inventories existing data on human resources, human science research funding (that is, funding of the social sciences and humanities), and the communication of research results. It attempts to describe the various dimensions of the research process in the social sciences rather than analyse them, to identify problems rather than offer solutions. If it helps to delineate the state of social science research in Canada today, it will have achieved its objective.

The task is a thorny one, however, owing to the lack of accurate, complete, and up-to-date data. Indeed, attempts to go beyond the level of aggregated data are almost invariably frustrated: for most disciplines and professions the data required to conduct state-of-the-art studies simply do not exist.[1] For example, the chapter on research funding in this paper deals with all the human sciences because data on the social sciences are not collected separately. In the case of the human resources (Chapter 2), disaggregated data are available and lend themselves to more detailed analysis.

It should also be recognized that the mere compilation of statistical information gives only a partial and imperfect picture of social science research. Questions concerning the compartmentalization of the social sciences, their social contribution, and the use of research results, for example, are beyond the scope of this report. Far from being exhaustive, the paper invites more "research on research."

Nonetheless, the data collected here are sufficient to show that research has become a well-established activity in the social sciences as a result of the expansion of graduate studies and the development of a mature and highly qualified professoriate in Canadian universities. In spite of their slow growth, the social sciences are approaching, if they have not already reached, the take-off point in their development. Knowledge is being accumulated in many important fields. New theories, concepts, and methods are emerging, renewing and diversifying the interpretation of empirical data.

Canadians could capitalize on these accomplishments and encourage further advances; instead, the vitality of the social science research community is being sapped by a lack of support. The challenge facing Canadians now is to make use of the research capacity in the social sciences that has been developed over the past two decades at a considerable cost.

Research Funding in the Human Sciences

Over the past two decades Canada has developed a research capacity in the social sciences that is comparable to that of other industrialized countries.*

* Chapter 2 highlights the increase in human resources in the social sciences.

Although essential for the development of research, this human potential can be fully realized only when adequate physical and financial resources are made available.

This chapter assesses Canada's human science[1] research effort and examines the financial resources devoted to research in various performing sectors. It also describes the evolution of funding patterns over the past decade. The human sciences have been neglected; the result is not so much that few professionals in this field are doing research as that there is a shortage of funds for research, which is increasingly being concentrated in the universities.

Human Science Research Funding: A Canadian and International Perspective

Table 1 shows that Canada allocates a very modest share of its total research expenditures to the human sciences and that during the past decade this share declined in relative terms (current dollars) and in absolute terms (constant dollars). There is a widening gap between resources allocated to the different fields of science. Indeed, the table shows that the human sciences have lost a great deal of ground relative to the natural sciences since 1971, declining from 11.9 per cent of total R&D expenditures in 1971 to 8.5 per cent in 1983, a reduction of 28.6 per cent. In constant dollars, the situation appears even more dramatic because the real value of the sums spent on human science research decreased by 24.4 per cent over the same period, whereas the natural sciences saw a 32.3 per cent increase in the real value of their research funds.[2]

An international comparison of relative research efforts must be made before concluding that human science research is underfunded in Canada. The data in Table 2 indicate that our research effort in the human sciences compares favourably with that of most industrialized (OECD) countries. However, this is not the case for the natural sciences. Measured relative to gross domestic product (GDP), only Japan (0.23 per cent), the Netherlands (0.19 per cent), and Norway (0.17 per cent) spend more on human science research than does Canada.

Table 2 also shows that countries vary considerably in terms of how much they spend on university research: from 0.03 per cent of GDP in the United States to 0.22 per cent in Japan. Canada ranks fourth (0.07 per cent) in the group of 11 countries, which represents a research effort comparable to that of the Federal Republic of Germany. There is no suggestion that Canada's university sector receives any special consideration. Again, Japan differs substantially from other countries in the emphasis it gives to the university sector in human science research.

It is impossible to determine how Canada's current effort in this area compares with that of other OECD countries. It is clear, however, that the challenge facing the human sciences is to counteract the reduction in research funding levels. This seems to be the appropriate perspective from which to view the demand for the establishment of a better balance in the allocation of resources between the principal fields of scientific endeavour. In this regard, Japan may provide an example for Canada to follow.

Catch-up measures are the only way to regain lost momentum in human science research. This does not necessarily involve the reallocation of funds among the various scientific fields. It will be sufficient to regard human science research expenditures as investments and to recognize that research in the human sciences has an importance comparable to that of

Table 1. R&D Expenditures in Canada, by Scientific Field, 1971 to 1983

($ millions)

Year	GNP[1]	Gross Expenditures on R&D (GERD)					
		Natural Sciences		Human Sciences		Current	Constant[2]
		$	%	$	%		
1971	94 400	1 160	88.1	157	11.9	1 317	1 317
1972	105 200	492	88.2	160	11.8	1 352	1 284
1973	123 600	1 284	88.4	169	11.6	1 453	1 263
1974	147 500	1 504	88.5	195	11.5	1 699	1 283
1975	165 300	1 686	88.2	226	11.8	1 912	1 297
1976	191 900	1 834	87.9	252	12.1	2 086	1 285
1977	210 200	2 055	88.2	276	11.8	2 311	1 335
1978	232 200	2 348	89.1	287	10.9	2 635	1 414
1979	264 300	2 694	90.0	299	10.0	2 993	1 459
1980	296 500	3 204	90.4	340	9.6	3 544	1 553
1981	339 000	3 953	91.2	380	8.8	4 333	1 715
1982	356 600	4 591	91.6	420	8.4	5 011	1 800
1983	389 400	4 969	91.5	459	8.5	5 428	1 841

[1] Gross National Product

[2] Two deflators have been used. The Gross National Expenditures Implicit Price Index (GNE-IPI) has been applied to the natural sciences, while the Implicit Price Index of Current Government Expenditures on Goods and Services (IPI-GEGS) has been applied to the human sciences.

Source: Canadian Science Indicators, Statistics Canada, Ottawa, 1983 and data provided by the Centre for Science Statistics and the Gross National Product Division, Statistics Canada.

Table 2. International (OECD) Comparison of R&D Effort

Country	R&D Expenditures as a Percentage of GDP[1]		University Research as a Percentage of GDP (1979)	
	Human Sciences (1977)	Natural Sciences (1979)	Human Sciences	Natural Sciences
United States	N/A	2.39	0.03	0.32
France	0.03	1.81	N/A	N/A
Japan	0.23	2.04	0.22	0.35
Federal Rep. Germ.	0.11	2.27	0.07	0.33
United Kingdom	N/A	2.20	0.06	0.19
Average	0.12	2.14	0.09	0.30
Australia	N/A	0.99	0.10	0.25
Belgium	N/A	1.37	0.06	0.23
Canada	0.12	1.04	0.07	0.17
Denmark	0.11	N/A	N/A	N/A
Finland	0.11	N/A	N/A	N/A
Italy	0.07	0.89	0.05	0.13
Netherlands	0.19	1.99	0.12	0.37
Norway	0.17	N/A	N/A	N/A
Sweden	N/A	1.87	0.06	0.39
Switzerland	N/A	2.29	0.06	0.37
Average	0.09	1.49	0.07	0.27

[1] Gross Domestic Product

Source: Lacroix, R. et Séguin-Dulude, L., Les disparités internationales et nationales dans les efforts de R-D : Une explication de la situation canadienne et québécoise, Centre de recherche en développement économique, Université de Montréal, 1983 and A Human Science Policy Framework, MOSST Draft Discussion Paper, 1982.

research in the natural sciences. Table 3 shows that in the human sciences the federal government has emphasized related scientific activities (RSA)[3] rather than research. In fact, when it comes to the human sciences, the federal government reverses the importance it gives research in the natural sciences. To the extent that there is a complementary, interdependent relationship between R&D and related scientific activities in the human sciences, it is difficult to see how research can play its proper role given the minimal resources it is allocated. A reallocation of funds within the human science sector would constitute an initial catch-up measure, which would also help to re-establish a healthier balance between funds allocated to R&D and RSA.

The Performing Structure of Research in the Human Sciences

Analysis of the performing structure of human science research permits an evaluation of the effect of the general deterioration in the level of funding provided to research. This section focuses on the consequences of a decrease in the real value of research funds in the context of a lopsided performing structure. Regional disparities in the intensity of human science research will also be discussed.

Table 4 provides an overview of the performing structure of human science research. It shows that more than three-quarters of human science research expenditures are allocated to the university sector. By comparison, this sector accounts for only 25 per cent of research expenditures in the natural sciences.

However, the performing structure of human science research may be less concentrated than the data suggest. The data do not take into account the human science research performed or conducted by private enterprise (about 10 per cent of social science doctoral graduates work in the private sector). Without data, no estimate of the magnitude of this funding can be made. The fact that the major incentive for industrial R&D -- the tax write-off for scientific research -- does not apply to expenditures for human science research, suggests that the resources devoted to R&D by the private sector are probably very small. It is clear, therefore, that human science research is carried out principally by the university sector and, to a lesser extent, by the government sector.

The concentration of human science research in the universities raises the question of whether university research is funded in proportion to its importance as a performing sector. This concentration exposes university researchers to greater, more diverse pressures than is experienced by their colleagues in the natural sciences, since unlike natural scientists, social scientists in the universities must meet most of society's demands for research. Indeed, the pressure to carry out socially relevant research is increasing in the human sciences partly because of the performing structure's lack of diversification. Recent conflicts between a university community jealous of its independence and political decision makers seeking to tailor university research to social priorities are due in part to this concentration of research within the university sector.

The University Sector

As an introduction to the analysis of research funding in the university sector, it is appropriate to clarify the pattern of research activity in the human sciences. A recent study[4] demonstrated that university research in the social sciences is a parttime activity to which university professors devote themselves only after they have completed their teaching and

Table 3. Distribution of Federal Government Expenditures on Activities in the Natural and Human Sciences, 1970-71 to 1983-84

Year	Natural Sciences			Human Sciences		
	R&D %	RSA[1] %	Total ($ millions)	R&D %	RSA[2] %	Total ($ millions)
1970-71	76.1	23.9	698.0	29.7	70.3	139.1
1974-75	73.0	27.0	966.0	26.3	73.7	306.4
1978-79	71.8	28.2	1 399.0	23.5	76.5	445.1
1979-80	71.8	28.2	1 462.0	22.1	77.9	426.3
1980-81	71.9	28.1	1 671.0	20.9	79.1	470.8
1981-82	73.5	26.5	1 990.0	18.2	81.8	608.9
1982-83	73.6	26.4	2 264.0	21.0	79.0	636.1
1983-84	73.3	26.7	2 521.0	19.9	80.1	702.4

[1] The related scientific activities (RSA) in the natural sciences include: data collection, information, testing and standardization, feasibility studies, and education support.

[2] The related scientific activities (RSA) in the human sciences include: data collection, information, economic and feasibility studies, operations and policy studies, education support, and museums.

Source: Federal Government Expenditures on Activities in The Social Sciences and Humanities, 1970-71 to 1983-84 and Federal Government Expenditures on Activities in The Natural Sciences, 1963-64 to 1983-84, Centre for Science Statistics, Statistics Canada, Ottawa, 1983.

Table 4. R&D Expenditures in the Human Sciences, by Performing Sector, 1971 to 1983 (millions of dollars)

Year	Federal Administration		Provincial Administration		Universities		Nonprofit Organizations		Private Enterprise		Current	Constant[1]
	$	%	$	%	$	%	$	%	$	%		
1971	27	17.2	7	4.5	123	78.3	--	--	N/A	--	157	157
1972	30	18.7	8	5.0	121	75.6	1.0	0.6	N/A	--	160	149
1973	35	20.7	9	5.3	124	73.4	1.0	0.6	N/A	--	169	145
1974	41	21.0	11	5.6	142	72.8	1.0	0.5	N/A	--	195	144
1975	48	21.2	11	4.9	166	73.4	1.0	0.4	N/A	--	226	145
1976	56	22.2	12	4.8	183	72.6	1.0	0.4	N/A	--	252	142
1977	52	18.8	13	4.7	210	76.1	1.0	0.4	N/A	--	276	142
1978	47	16.4	12	4.2	227	79.1	1.0	0.3	N/A	--	287	136
1979	40	13.4	14	4.7	244	81.6	1.0	0.3	N/A	--	299	130
1980	43	12.6	18	5.3	278	81.8	1.0	0.3	N/A	--	340	131
1981	48	12.6	21	5.5	310	81.6	1.0	0.3	N/A	--	380	128
1982	56	13.3	21	5.0	342	81.4	1.0	0.2	N/A	--	420	126
1983	59	12.8	23	5.0	376	81.9	1.0	0.2	N/A	--	459	128

[1] The deflator used is the Implicit Price Index of the GNP -- Current Government Expenditures on Goods and Services (IPI-GEGS)

Source: Annual Review of Science Statistics, 1980 and Canadian Science Indicators, Statistics Canada, 1983.

administrative duties. The discontinuous nature of human science research is significant and helps to explain why a considerable portion of university research is conducted with little direct funding.

Table 5 shows that the relative importance of university research funding sources has fluctuated only slightly since 1965: on average, four-fifths of the funds come from internal sources; federal and provincial governments pay the remaining costs. The dependence on universities for direct and indirect support is a distinctive characteristic of human science research, and is explained both by the amount of nonsponsored research carried out in the universities and by the scarcity of direct outside assistance. In fact, John Adair's study showed that university teachers most often go to the university itself to obtain small amounts of funding.

The data in Table 5, in particular those dealing with contributions from universities, require some explanation: the amounts attributed to the universities are estimates that represent principally the portion of professors' salaries allocated to research (this salary portion is estimated by Statistics Canada to be 20 per cent). In addition, the amounts attributed to the universities in Table 5 include internal research funds. However, it is clear that most of the universities contribute only indirectly to research support through salaries.

This dependence on internal funding sources means that the human sciences are more vulnerable than are the natural sciences to the vicissitudes of the university system, particularly at a time of financial cutbacks. Without increased funding from outside sources, human science researchers may be forced to scale down their research activities to a level that they can maintain without outside subsidies. This would have unfortunate consequences for research. Thus, the principal problem facing human science research is less the low rate of participation by university teachers in research than the generally low level of funding, which inhibits sustained research activities.

The federal government remains the principal source of direct funding for university research in Canada (Table 6). Despite increased resources devoted by provincial governments to university research, the federal government alone provides, on average, 54.3 per cent of direct funding. Furthermore, an increasing proportion of these resources comes from the granting councils, because of the reduction in funds provided by federal departments.

These data do not, however, show the difficulties being encountered by the Social Sciences and Humanities Research Council of Canada (SSHRC) in meeting the most basic needs of its research community. In spite of a reallocation of its resources to benefit research assistance programs, SSHRC seems to have reached the limits of its capacity to stimulate human science research. Table 7 indicates that the number of requests submitted to the research grants program alone has almost doubled since 1978/79. SSHRC's resources have not, however, permitted it to meet the increased demand; thus the refusal rate has climbed steeply. Such high refusal rates impede productivity and belie SSHRC's mandate. The scarcity of resources has also limited the number of grants allocated for two to three-year periods. Consequently, researchers cannot plan their research activities because of the unpredictable nature of the system of financial support.

The reaction of the research community to the Council's adoption of a proactive approach to research support

Table 5. Human Science Research Expenditures in the University Sector, by Funding Source, 1965-66 to 1983-84

	1965-66	1970-71	1975-76	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84[1]
				($ millions)					
Fed. Admin.	3.1	9.8	19.6	26.0	24.1	26.5	31.6	39.0	41.3
Prov. Admin.	3.0	8.0	15.5	23.7	17.2	21.6	26.3	30.1	31.9
Universities	40.0	98.0	132.9	176.1	201.5	227.9	249.2	272.0	288.3
Priv. Enter.	0.1	0.1	0.2	0.2	--	--	--	--	--
Nonprof. Org.	0.1	0.1	0.4	0.7	2.2	2.2	3.4	2.9	3.1
Total	**46.3**	**116.0**	**168.6**	**226.7**	**245.0**	**278.2**	**310.5**	**344.0**	**364.6**
				(percentage distribution)					
Fed. Admin.	6.7	8.4	11.6	11.5	9.8	9.5	10.2	11.3	11.3
Prov. Admin.	6.5	6.9	9.2	10.4	7.0	7.8	8.5	8.8	8.7
Universities	86.4	84.5	78.8	77.7	82.3	81.9	80.3	79.1	79.1
Priv. Enter.	0.2	0.1	0.1	0.1	--	--	--	--	--
Nonprof. Org.	0.2	0.1	0.2	0.3	0.9	0.8	1.1	0.8	0.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[1] Preliminary data: assuming an increase of 6 per cent.

Source: Calculation of R&D Expenditures in the Higher Education Sector by Province, 1982, Centre for Science Statistics, Statistics Canada.

Table 6. Direct Funding of Human Science Research in the University Sector, by Source of Funding, 1970-71 to 1983-84

Year	Federal Administration		Subtotal	Provincial Administrations	Private Enterprise	Nonprofit Organizations	Total
	SSHRC	Departments					
				($ millions)			
1970-71	6.4	3.4	9.8	8.0	0.1	0.1	18.0
1973-74	8.9	6.1	15.0	10.4	0.1	0.3	25.8
1976-77	13.5	7.9	21.4	18.3	0.2	0.4	40.3
1977-78	12.4	9.2	21.6	20.7	0.2	0.6	43.1
1978-79	17.5	8.5	26.0	23.7	0.2	0.7	50.5
1979-80	19.1	7.5	26.9	17.2	--	2.2	46.1
1980-81	23.5	7.0	30.5	21.6	--	2.2	54.3
1981-82	26.9	7.3	34.2	26.3	--	3.4	63.9
1982-83	34.0	8.7	42.7	30.1	--	2.9	75.7
1983-84	36.1	9.1	45.2	31.9	--	3.1	80.2

Source: Calculation of R&D Expenditures in the Higher Education Sector by Province, 1982 and The University Sector, 1980, Centre for Science Statistics, Statistics Canada, Ottawa, 1983.

Table 7. Number of Applications Submitted and Awards Granted by the Research Grants Program of SSHRC, 1978-79 to 1982-83

	Applications		Awards		Refusal Rate	
	No.	($ millions)	No.	($ millions)	No. (%)	$ (%)
1978-79	672	11.0	533	8.3	20.7	24.5
1979-80	834	13.0	603	8.1	27.7	37.7
1980-81	801	13.0	619	8.1	22.7	37.7
1981-82	964	20.0	645	11.0	33.1	45.0
1982-83	1 183	29.7	802	15.5	32.2	48.8

Source: Statistical Tables, Planning and Evaluation Division, SSHRC.

should be assessed within the context of SSHRC's inability to meet current needs and its importance as a source of research support. Since 1979, SSHRC has abandoned, to a certain extent, its reactive mode of operation and has allocated increasing resources (13.2 per cent in 1983/84) to programs intended to direct research to so-called national priority areas such as aging and the human context of science and technology.

Finally, Table 8 reflects the considerable regional differences in the intensity of university research in the human sciences. Ontario and Quebec capture more than 63 per cent of public expenditures (both federal and provincial) for human science R&D. The absolute level of expenditures in Ontario is five times greater than in the Atlantic provinces. Because Canada suffers from unequal economic and political development, such differences in absolute levels of R&D expenditures are understandable.

However, certain features of this table warrant particular attention. Only the Quebec and Alberta governments support university R&D at a higher level than does the federal government. In Ontario the amount spent by the provincial government represents slightly more than half of federal funds received by this province's universities. As a result, the greater intensity of university research in Ontario is explained principally by the fact that this province's universities obtain, on average, 40 per cent of federal funding whereas Quebec's receive 23 per cent; the Atlantic provinces' universities, 15 per cent; and the universities of the West, 20 per cent.

This section has called attention to four areas of particular interest. First, university research in the human sciences depends on indirect support offered by the universities in the form of salaries. Second, the federal government, through SSHRC in particular, is the principal source of direct funding for human science research. Third, despite the position occupied by SSHRC in research funding in Canada, it does not have sufficient resources to meet the demand for research support. Finally, regional disparities in absolute levels of expenditure for research are related to the regional distribution of federal funds for research.

The Human Sciences in the Federal Government

This section explores the role of the human sciences within the federal government and the deployment of human and financial resources by this level of government. Tables 9 to 12 deal with various aspects of this question, including the evolution of financial and human resources allocated by the federal government to in-house activities in the human sciences; the identification of the major performers of human science activities; and the type of human science activities that take place within the federal government.

On the whole, the human sciences play a support role in the process of planning, developing, and evaluating programs and public policies in the area of socioeconomic management and development. Not only is human science research a secondary activity, but the federal government has reduced the resources allocated to it substantially during the past few years. This retrenchment is manifested on the one hand by a reduction in the number of person-years and the real value of funds committed to in-house research in the human sciences and, on the other hand, by a tendency to have research done by outside consultants rather than by in-house staff.

During the past decade federal government expenditures for human science activities have increased at a slightly higher rate than has inflation

Table 8. Public Funding of Human Science Research in the University Sector, by Province and Source of Funding, 1979-80 to 1982-83

Province	1979-80		1980-81		1981-82		1982-83	
	Federal[1]	Provincial[2]	Federal[1]	Provincial[2]	Federal[1]	Provincial[2]	Federal[1]	Provincial[2]
	($ millions)							
Newfoundland	1.6	--	2.3	--	1.0	0.4	0.8	0.1
P.E.I.	--	--	--	--	--	--	0.3	--
N.S.	0.6	0.1	2.0	0.1	1.9	0.1	2.2	0.1
N.B.	0.9	0.1	1.1	0.1	1.2	0.1	1.4	0.3
Quebec	5.8	7.8	6.0	9.5	7.4	10.7	9.2	10.7
Ontario	10.2	5.9	10.3	6.1	13.5	7.3	16.8	9.5
Manitoba	1.1	0.6	1.0	0.8	1.9	1.3	1.8	0.9
Sask.	0.6	0.7	0.6	0.1	0.6	0.1	0.8	1.0
Alberta	1.0	1.4	0.8	3.2	1.3	4.8	1.8	6.4
B.C.	2.3	--	2.4	1.7	2.8	1.5	3.9	1.1
Total	24.1	17.2	26.7	21.6	31.6	26.3	39.0	30.1

[1] Due to the method of estimating used by Statistics Canada, the totals in this table do not correspond to those of Table 23. The method used is the following: SSHRC expenditures on research support, plus 20 per cent of the R&D expenditures of the federal government.

[2] The provincial government expenditures on university research are estimates corresponding to 20 per cent of provincial and municipal R&D expenditures.

Source: Calculation of R&D Expenditures in the Higher Education Sector by Province, 1982, Centre for Science Statistics, Statistics Canada, Ottawa, 1983.

(Table 9), so that the real value of financial resources available in 1983/84 was 12.1 per cent higher than in 1971/72. The increase is explained entirely by the increase in expenditures for RSAs: the real value of funds allocated to research decreased by about 36 per cent between 1971/72 and 1983/84.

A comparison of federal expenditures for in-house activities in the natural and human sciences (Table 10) reveals significant differences: in terms of resources, first of all, 75 per cent of federal expenditures go to the natural sciences and 25 per cent to the human sciences. In addition, data show that the greater part of federal human science expenditures are allocated to RSAs, which is not the case for the natural sciences.

The limited importance of human science activities within the federal government is confirmed by the data in Table 11, which illustrate clearly the fact that research is carried out by a small percentage of human science personnel. Furthermore, this percentage is declining: whereas 28 per cent of scientific and professional personnel were working in R&D in 1975, only 14 per cent were doing so in 1983/84. Generally, the number and proportion of human science personnel engaged in R&D have been declining since 1975 in all categories of employment.

Finally, the concentration of federal expenditures for human science activities in a few agencies (Table 12) should be noted. Statistics Canada receives the most funding, followed by the National Museums and the National Library. These three performers accounted for more than half of R&D and RSA expenditures in 1983/84.

The Provinces

Data on the provinces' scientific activities are scarce, incomplete, and difficult to obtain. The provinces hesitate to publish the results of studies or surveys because they do not want to invite comparisons. Indeed any comparison is risky to say the least, considering the provinces' different economic, political, and social structures.

It is possible, however, to illustrate some aspects of provincial scientific activities. Statistics Canada has been helping four provinces conduct surveys of their scientific activities: Ontario and Alberta since 1974, Saskatchewan since 1975, and British Columbia since 1977. Data on scientific activities are not systematically gathered in the six other Canadian provinces.

The representativeness of this sample must be questioned since neither the Atlantic provinces nor Quebec are represented. Not only does Quebec appear to be making a greater research effort than the other provinces, but it has a research support system similar to that of the federal government. In fact, Quebec is the only province in which assistance to human science research is not left entirely to the discretion of civil servants. Organizations such as the Quebec Social Research Council, the Fonds de Formation de chercheurs et action concertée (FCAC), and the Quebec Health Research Fund play a central role in providing human science research support. The presence of such organizations inevitably influences the Quebec government's scientific activities. Thus, the overview of the four provinces mentioned above is subject to certain reservations.

Table 13 shows that, despite considerable variations, the provincial governments (with the exception of British Columbia) devote nearly the same resources to the human as to the natural sciences. Nearly half of Ontario's scientific activities are in the human sciences; the percentages for

Table 9. Federal Government Expenditures[1] on Intramural Activities in the Human Sciences, by Activity, 1971-72 to 1983-84

Activity	1971-72	1973-74	1975-76	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84
	(millions of 1971 dollars)									
R&D:	25.2	28.8	25.1	22.0	18.4	13.9	13.3	12.6	13.1	12.8
Admin. Extra-mural Prog.	0.7	3.3	5.4	4.7	3.8	3.5	3.4	3.4	3.6	3.7
Subtotal	25.9	32.1	30.5	26.7	22.2	17.4	16.7	16.0	16.7	16.5
RSA:										
Data Collection	86.0	75.7	72.2	67.4	65.6	57.3	51.6	81.4	59.7	60.7
Information	11.6	15.5	24.5	23.1	23.7	21.8	25.3	24.4	24.1	24.9
Econo. & Feasi. Studies	--	1.2	7.3	8.6	10.0	8.6	12.2	7.6	9.4	9.7
Policy Studies	14.2	23.1	22.8	22.6	23.6	22.2	21.3	24.2	26.9	29.7
Ed. Support	--	0.6	--	--	--	--	--	--	--	--
Museums	--	--	12.1	13.4	14.7	13.8	13.1	12.0	11.8	11.4
Admin. Extra-mural Prog.	1.0	2.1	2.6	3.3	2.8	2.6	2.4	2.4	2.5	2.5
Subtotal	112.8	118.2	141.7	138.6	140.4	126.2	126.0	151.9	134.4	139.0
Total	138.7	150.3	172.2	165.3	162.6	157.6	142.7	167.9	151.0	155.5

[1] Deflator used is the Implicit Price Index -- Current Government Expenditures on Goods and Services.

[2] Columns may not add due to rounding.

Source: Federal Government Expenditures on Activities in the Social Sciences and Humanities, 1970-71 to 1983-84, Centre for Science Statistics, Statistics Canada, Ottawa, 1983.

Table 10. Comparison of Federal Government Expenditures on Intramural Activities in the Natural Sciences and Human Sciences, by Activity, 1971-72 to 1983-84

Year	Natural Sciences			Human Sciences			All Fields		
	R&D	RSA	Total	R&D	RSA	Total	R&D	RSA	Total ($ millions)
	(percentage distribution)								
1971-72	53.6	24.0	77.6	4.4	18.0	22.3	58.0	42.0	638.1
1973-74	51.9	24.8	76.7	5.1	18.2	23.3	57.0	43.0	765.5
1975-76	47.4	25.0	72.4	4.8	22.8	27.6	52.2	47.8	995.2
1977-78	46.8	25.8	72.6	4.4	23.0	27.4	51.2	48.8	1 188.4
1978-79	48.0	25.6	73.6	3.6	22.8	26.4	51.6	48.4	1 322.8
1979-80	48.5	26.2	74.7	3.0	22.3	25.3	51.5	48.5	1 332.1
1980-81	49.2	25.4	74.6	2.9	22.5	25.4	52.1	47.9	1 496.3
1981-82	47.7	24.3	72.0	2.6	25.4	28.0	50.3	49.7	1 813.7
1982-83	50.5	24.4	74.9	2.8	22.3	25.1	53.3	46.7	2 012.4
1983-84	49.6	25.1	74.6	2.7	22.7	25.4	52.2	47.8	2 208.6

Source: Federal Government Expenditures on Activities in the Social Sciences and Humanities, 1970-71 to 1983-84 and Federal Government Expenditures on Activities in the Natural Sciences, 1963-64 to 1983-84, Centre for Science Statistics, Statistics Canada, Ottawa, 1983.

Table 11. Federal Government Personnel Engaged in Human Sciences Activities and the Proportion of this Personnel Engaged in R&D, by Category, 1975-76 to 1983-84

Category	1975-76		1976-77		1978-79		1980-81		1982-83		1983-84	
	N[1]	%R&D[2]	N	%R&D	N	%R&D	N	%R&D	N	%R&D	N	%R&D
Executive	179	17	185	21	168	12	173	13	260	10	343	7
Sci. & Prof.	2 837	28	2 901	27	2 641	18	2 271	15	2 451	14	2 463	14
Admin. & Foreign Serv.	1 699	7	1 930	7	1 770	9	1 758	8	1 865	8	1 845	6
Technical	1 195	12	1 275	11	1 526	8	1 418	7	1 503	7	1 504	7
Admin. Sup.	4 918	5	5 370	5	4 160	5	3 717	5	3 588	5	3 394	4
Operational	301	3	309	4	231	4	232	0.4	183	0.5	177	0.6
Military	31	68	30	67	35	69	32	62	33	64	32	62
Total	11 160	12	12 000	12	10 531	10	9 601	8	9 883	8	9 758	7

[1] Total number of person-years.

[2] Excluding persons engaged in the administration of extramural R&D.

Source: Science Statistics, Bulletin, vol. 7, no. 10, Science and Technology Statistics Division, Statistics Canada, Ottawa, 1983.

Table 12. Federal Government Expenditures in Intramural Activities in the Human Sciences, by Department or Agency, 1971-72 to 1983-84

Department or Agency	1971-72	1973-74	1975-76	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84
	(millions of 1971 dollars)									
StatsCan	80.9	79.8	118.7	139.9	145.1	134.6	157.6	246.8	205.5	230.5
Museums	2.2	4.6	24.4	28.0	33.5	30.6	33.9	36.7	41.4	43.7
Nat. Lib.	4.6	7.6	10.7	15.5	17.6	18.5	21.2	28.7	34.6	38.4
Econo. Reg. Dev.	--	--	--	--	--	1.5	1.6	5.8	14.0	20.9
Employ. & Imm.	6.2	7.4	8.9	9.5	11.6	13.3	13.6	17.6	19.0	20.2
Treas. Board	1.6	7.3	11.9	12.1	12.0	11.2	12.0	14.8	17.6	19.5
Archives	2.8	4.1	6.7	9.1	10.0	11.0	12.9	16.3	17.2	18.7
Finance	2.0	5.0	6.2	7.0	8.1	8.7	9.1	11.6	13.7	16.3
Econ. Council	--	--	9.5	9.7	14.1	14.6	15.9	11.4	11.6	12.7
Int. Dev. Council	--	--	6.7	7.5	8.2	8.1	8.8	8.5	10.1	11.8
Energy, Mines, Res.	1.0	1.8	5.0	6.3	7.1	4.3	7.4	6.8	6.9	11.2
Health & Welfare	1.9	3.7	7.1	7.7	8.2	6.6	6.8	7.5	10.3	10.6
Sci. & Tech.	--	--	2.6	3.9	5.8	5.7	7.0	8.1	8.7	10.6
Other	39.4	56.8	56.2	69.9	67.4	68.2	72.2	87.7	94.4	95.2
Total	142.6	178.1	274.6	326.1	348.7	336.9	380.0	508.3	505.0	560.3

Source: Federal Government Expenditures on Activities in the Social Sciences and Humanities, 1970-71 to 1983-84, Centre for Science Statistics, Statistics Canada, Ottawa, 1983.

Table 13. Distribution of Expenditures of Four Provincial Governments on Intramural Activities in the Natural and Human Sciences, 1975-76 to 1981-82

	Natural Sciences			Human Sciences			Total
	R&D (%)	RSA (%)	Subtotal (%)	R&D (%)	RSA (%)	Subtotal (%)	($ thousands)
Ontario:							
1975-76	27.8	16.9	44.7	5.7	49.6	55.3	66 842
1977-78	22.2	16.5	38.5	4.6	36.7	41.3	89 088
1979-80	25.3	22.0	47.2	4.9	47.8	52.8	108 588
1981-82	24.6	25.9	49.5	7.8	41.7	50.5	128 480
Saskatchewan:							
1975-76	9.6	38.8	48.4	3.4	48.2	51.6	9 245
1977-78	14.2	42.5	56.7	6.0	37.3	43.3	10 121
1979-80	11.2	47.5	58.7	10.5	30.8	41.3	13 159
1981-82	12.4	48.0	60.4	7.8	31.8	39.6	15 687
Alberta:							
1975-76	17.4	36.1	53.5	5.8	40.7	46.5	17 977
1977-78	19.7	30.1	49.8	3.6	46.6	50.2	17 113
1979-80	21.7	34.2	55.9	4.2	39.9	44.1	23 513
1980-81*	26.1	27.0	53.0	3.9	43.1	47.0	26 067
British Columbia:							
1975-76	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1977-78	19.2	48.2	67.4	3.2	29.4	32.6	23 484
1979-80	20.2	49.5	69.7	3.2	27.1	30.3	34 310
1981-82	24.9	40.2	65.1	1.8	33.1	34.9	46 404

* Data not available for 1981-82.

Source: Science Activities of the Government of British Columbia, Alberta, Saskatchewan, Ontario, Science Statistics Centre, Statistics Canada.

Saskatchewan and Alberta are 40 and 46.9 respectively. As in the case of the federal government, almost all of these activities are RSA, rather than R&D. Table 14 confirms this point: although the situation varies greatly from one province to another, the proportion of human science researchers is always very low.

Finally, Table 15 illustrates a particular aspect of provincial funding of human science research. At the federal level there is a link between the type of activity (R&D and RSA) and the performing sector (public administration, universities, private enterprise), with R&D being carried out principally in the universities. Table 15 does not show the same correlation in the case of the provinces. Rather, this table indicates the existence of enormous variations among provinces and over time. Between 1976 and 1981, almost all of British Columbia's research expenditures were intramural; in Ontario and Alberta, public administration accounted for only 33 per cent of provincial resource expenditures. In-house research in Saskatchewan varied between 47 per cent of expenditures in 1975 and 99 per cent in 1979. The modest amounts involved account for these enormous variations. It is also possible that they reflect the absence of official research support policies and structures.

Private Enterprise

It would be interesting to know the place and role of private enterprise in the performance of human science research. Like its counterparts in most industrialized countries, Statistics Canada does not survey industrial R&D carried out in the human sciences. It is nonetheless possible to provide an overview of public expenditures allocated to private enterprise for activities in the human sciences and thereby to draw attention to this often-neglected sector.

Table 16 contains some interesting data. In 1981/82 the federal government and four provincial governments paid out $33.8 million to private enterprise for R&D and RSA in the human sciences; most of these funds were for RSA. These amounts, though small, are not negligible. The funds provided by all 10 provinces together would probably amount to more than $50 million. It is also interesting to note what proportion of extramural expenditures are allocated to private enterprise and, more specifically, the importance of these expenditures in the context of the total amounts spent by the provinces in the extramural sector. The government of British Columbia, for example, treats private enterprise with great consideration when allocating resources.

Taken together, the data suggest that governments ascribe little importance to human science research, even though the amounts they devote to it are certainly not negligible. Governments tend to rely on the university sector to meet Canada's research needs but at the same time hesitate to devote the necessary resources to research. The problem confronting human science research is not so much that too few professionals in the field are doing research but that there is too little money to carry out research satisfactorily. Perhaps the performing structure of human science research should be diversified.

Human Resources

Scientific inquiry is inseparable from the individuals who are its agents and trustees. The past decade has witnessed a great increase in human resources in the social sciences. There now exists an enormous research potential in this area that Canada has hardly put to use.

This chapter includes data on social science research personnel, the university professoriate, enrolments and

Table 14. Personnel of Four Provincial Governments Engaged in Activities in the Human Sciences and the Proportion of Them Engaged in R&D, by Category of Employment, 1981-82

Province	Professional		Technical		Other		Total	
	N	%R&D[1]	N	%R&D[1]	N	%R&D[1]	N	%R&D[1]
B.C.	226	7.1	161	4.3	135	3.0	523	5.2
Alberta[2]	292	9.9	36	5.6	114	4.4	442	8.1
Saskatchewan	114	21.9	20	45.0	48	12.5	182	22.0
Ontario	748	21.3	223	32.7	566	8.8	1 537	18.3

[1] Proportion of this category of personnel engaged in R&D.

[2] 1980-81.

Source: Scientific Activities of the Government of British Columbia, Alberta, Saskatchewan, Ontario, Science Statistics Centre, Statistics Canada.

Table 15. Expenditures of Four Provincial Governments on Intramural Activities in the Human Sciences, by Activity, 1975-76 to 1981-82

	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
				($ thousands)			
British Columbia							
R&D		699.0	751.0	982.0	1 104.0	723.0	827.0
% Total Expenditures[1]	N/A	95.0	86.4	90.8	91.5	97.2	95.4
RSA[2]		6 469.0	6 912.0	8 553.0	9 303.0	13 733.0	15 371.0
% Total Expenditures[1]		71.6	61.2	64.7	64.7	59.0	61.3
Alberta							
R&D	1 049.0	643.0	616.0	647.0	996.0	1 011.0	
% Total Expenditures[1]	33.6	13.3	29.8	21.0	25.5	35.3	
RSA[2]	7 309.0	7 261.0	7 971.0	7 704.0	9 379.0	1 1231.0	N/A
% Total Expenditures[1]	69.0	75.2	66.5	71.0	74.1	68.4	
Saskatchewan							
R&D	315.0	462.0	605.0	855.0	1 380.0	1 415.0	1 217.0
% Total Expenditures[1]	47.4	60.2	89.0	98.3	98.6	52.4	66.1
RSA[2]	4 456.0	3 770.0	3 776.0	4 134.0	4 055.0	5 118.0	1 989.0
% Total Expenditures[1]	70.2	63.8	66.0	62.6	62.5	65.9	58.6
Ontario							
R&D	3 798.0	4 136.0	5 054.0	4 636.0	5 373.0	6 372.0	9 995.0
% Total Expenditures[1]	35.7	26.0	31.7	26.0	33.2	42.3	52.8
RSA[2]	33 187.0	32 669.0	41 866.0	41 993.0	51 917.0	54 133.0	53 587.0
% Total Expenditures[1]	82.9	77.5	81.7	77.8	79.8	78.8	74.8

[1] Proportion of expenditures in all performing sectors.

[2] Assumes capital expenditures are intramural.

Source: Scientific Activities of the Government of British Columbia, Alberta, Saskatchewan and Ontario, Science Statistics Centre, Statistics Canada.

Table 16. Payments by Governments to the Private Sector for Human Science Activities, by Activity, 1975-76 to 1981-82

Source	1975-76			1977-78			1979-80			1981-82		
	R&D	RSA	Total	R&D	RSA	Total	R&D	RSA	Total	R&D	RSA	Total
						($ millions)						
Fed. Admin.	5.4	6.3	11.7	5.7	11.5	17.2	4.7	9.5	14.2	4.6	8.6	13.2
% Extramur. Expen.	11.5	15.8	13.4	10.7	22.2	16.4	8.7	22.6	14.8	7.2	18.1	11.9
B.C.[1]	--	0.9	0.9	0.1	2.1	2.2	0.1	3.2	3.3	--	7.8	7.8
% Extramur. Expen.	--	33.3	33.9	--	48.3	48.5	--	63.3	63.2	--	80.6	80.6
Alberta[2]	1.2	0.7	1.9	0.5	2.6	3.1	0.8	2.2	3.0	1.7	2.6	4.3
% Extramur. Expen.	59.2	20.6	34.7	40.7	62.4	57.6	31.6	61.8	49.0	93.6	50.4	61.3
Saskatchewan	--	0.8	0.8	--	0.7	0.7	--	0.5	0.5	0.3	0.9	1.2
% Extramur. Expen.	--	42.3	37.4	--	34.6	33.3	--	20.6	20.5	48.0	27.0	30.2
Ontario	0.4	2.1	2.5	0.4	2.5	2.9	0.8	3.1	3.9	0.7	6.6	7.3
% Extramur. Expen.	5.9	29.6	17.9	3.7	26.6	14.3	7.8	22.5	16.0	7.1	34.5	27.0
Total	7.0	9.9	16.9	6.7	19.4	26.1	6.4	18.5	24.9	7.3	26.5	33.8

[1] = 1976-77
[2] = 1980-81

Source: Federal Government Expenditures on Activities in The Social Sciences and Humanities, 1970-71 to 1983-84, and Scientific Activities of the Governments of British Columbia, Alberta, Saskatchewan and Ontario, Science Statistics Centre, Statistics Canada.

diplomas granted at the BA, MA, and PhD levels, and the labour market experience of graduate students.

Research Personnel in the Human Sciences

Table 17 shows the number of persons employed in human science research in Canada since 1975 and their distribution among the sectors of employment. It allows comparisons with the natural sciences and engineering. According to Statistics Canada estimates, about 12 per cent of Canadian scientists work in the human science field. These estimates are based on the assumption that human science research is carried out exclusively in the public and parapublic sectors and that the private sector has no research capacity for human sciences, although it employs half of all scientific personnel in the natural sciences and engineering. The funds allocated by provincial and federal governments to the private sector for activities in the human sciences, and the labour market experience of social science graduates belie this assumption.

The importance of the universities in human science research cannot be denied; they employ 80 per cent of Canada's human science researchers. The comparable figure for the natural sciences and engineering is only 20 per cent. This fact underlines once again the highly concentrated character of the human science research performing structure.

Table 17 also shows that since 1976 the number of individuals engaged in human science R&D has declined owing to a 55 per cent reduction in the number of researchers employed by the federal government. This drastic cut has important repercussions for the human sciences. Not only are human science graduates seeing an attractive career opportunity closed to them at a time when university hiring appears to be on the decline, but, in doing away with its research capacity in the human sciences, the federal government is increasingly obliged to turn to the universities to satisfy its needs for human science knowledge and expertise.

The University Professoriate

University teachers are both the prime producers of social science knowledge in Canada and the leading actors in the training of researchers. The data in Tables 18 to 23 trace the evolution of the social science professoriate in the various disciplines. Some comments on the age and citizenship of Canadian university teachers and the extent to which these factors create difficulties in the social sciences are also included.

1. Growth and Configuration of the University Professoriate

Table 18 reveals that the social sciences have benefited greatly from the expansion of the university system during the 1960s and early 1970s. Between 1960 and 1970 the number of social science professors quadrupled, from 1939 to 8516. Because of this spectacular growth the proportion of the university professoriate working in the social sciences rose from 25 per cent to 38 per cent between 1960 and 1975. Since then the number of professors in the social sciences has been growing at a rate similar to that for the university teaching profession as a whole.

The various social science disciplines have evolved differently, however. The expansion of the 1960s occurred chiefly in core disciplines such as psychology, sociology, economics, and political science. During this period the number of full-time teachers in these four disciplines increased from 27 per cent to 37 per cent of the social science professoriate, whereas their colleagues in the professional disciplines (law, education, administrative science, and social work, for example) lost ground,

Table 17. Persons Employed in R&D in Canada, 1975-80

Field	1975	1976	1977	1978	1979	1980	1981
				(full-time equivalent)			
Human Sciences:							
Scientific:							
Fed. Admin.	820	830	560	490	420	360	370
Prov. Admin.	310	330	340	290	350	390	370
Universities	3 210	3 270	3 370	3 370	3 380	3 390	3 370
Subtotal	4 340	4 430	4 270	4 150	4 150	4 140	4 110
Support Staff	2 930	3 000	2 980	2 990	2 990	2 980	3 030
Total	**7 270**	**7 430**	**7 250**	**7 140**	**7 140**	**7 120**	**7 140**
Natural Sciences and Engineering							
Scientific:							
Fed. Admin.	5 050	5 140	5 120	5 330	5 230	5 250	5 350
Prov. Admin.	940	1 020	1 130	1 100	1 180	1 190	1 260
Private Enter.	8 320	9 020	9 720	10 500	11 280	12 540	13 810
Universities	3 840	3 960	4 030	4 080	4 160	4 200	4 150
Others	140	140	150	150	200	260	280
Subtotal	18 290	19 280	20 150	20 170	22 050	23 440	24 850
Technicians	14 900	15 100	15 440	15 720	16 110	17 620	19 110
Support Staff	12 970	12 900	12 790	13 460	13 970	13 270	14 730
Total	46 160	47 280	48 380	50 350	52 130	54 330	58 690
All Fields	53 430	54 710	55 630	57 490	59 270	61 450	65 830

Source: Human sciences include the humanities and the social sciences.

Source: Canadian Science Indicators, Statistics Canada, Ottawa, 1983.

Table 18. Number of Full-Time Teachers in the Social Sciences, by Discipline, 1960-61 to 1980-81

Discipline	1960-61	1965-66	1970-71	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
Economics	248	474	738	923	949	965	979	1 017	999	1 052
Psychology	147	446	984	1 293	1 361	1 383	1 404	1 378	1 399	1 399
Political Science	62	230	542	677	728	740	718	722	733	737
Sociology	70	216	689	893	886	933	914	918	932	890
Subtotal	**527**	**1 366**	**2 953**	**3 786**	**3 924**	**4 021**	**4 015**	**4 035**	**4 063**	**4 078**
Law	132	230	418	523	570	579	620	623	666	665
Education	582	1 092	2 314	3 325	3 260	3 281	3 265	3 215	3 197	3 115
Adminis. Sciences	194	388	788	1 293	1 424	1 480	1 534	1 607	1 731	1 798
Social Work	78	129	222	339	348	354	359	361	366	351
Subtotal	**986**	**1 839**	**3 742**	**5 480**	**5 602**	**5 694**	**5 778**	**5 806**	**5 960**	**5 929**
Anthropology	23	58	197	339	348	354	359	328	333	342
History	217	517	935	1 016	1 044	1 029	1 045	1 017	1 065	1 018
Geography	93	244	492	616	633	643	653	656	666	629
Other	93	230	197	585	601	643	620	623	633	609
Subtotal	**426**	**1 049**	**1 821**	**2 556**	**2 626**	**2 669**	**2 677**	**2 624**	**2 697**	**2 598**
Total	**1 939**	**4 254**	**8 516**	**11 822**	**12 152**	**12 384**	**12 470**	**12 465**	**12 720**	**12 605**
All Fields	7 760	14 370	24 612	30 784	31 648	32 167	32 645	32 803	33 299	33 600
Index All Fields (1970-71=100.0)	31.5	58.4	100.0	125.1	128.6	130.7	132.6	133.3	135.3	136.5

Source: A Statistical Portrait of Canadian Higher Education, Statistics Canada, Education, Culture and Tourism Division, Ottawa, 1983 and data specially prepared by Statistics Canada.

dropping from 51 per cent to 44 per cent of the social science teaching body. At the same time, the number of law and administrative science professors has continued to increase more rapidly since 1975 than has the number of professors in the core disciplines. For example, the number of economics professors has increased by 1.5 per cent annually since 1975, and administrative science has experienced an annual average growth rate of approximately 5.6 per cent. A similar phenomenon has occurred in law and political science: the number of full-time professors has increased annually by 4.7 per cent and 1.5 per cent, respectively, since 1975. If this trend continues we might see the return of a university teaching structure in the social sciences that prevailed in 1960, when the professional disciplines dominated.

2. Levels of Qualification

The rapid expansion of the university teaching body during the 1960s gave rise to at least three phenomena important to the development of social science research: a decrease in the qualifications of social science teachers (Table 19), an age profile in which youth predominates (Tables 20 and 21), and massive hiring of foreigners by Canadian universities (Tables 22 and 23).

Table 19 shows the evolution of the qualification of full-time professors in the various social science disciplines. In contrast to the qualification of Canadian university professors in general, the qualification of social science professors declined markedly between 1960 and 1965. The proportion of social science professors with a doctoral degree declined from 45.1 per cent to 38.9 per cent before rising again to 44.6 per cent in 1970. During this period, the qualification of Canadian university teachers as a whole rose substantially. Since 1975, however, social science professors have regained a level of qualification equivalent to that of the total university professoriate.

Despite this improvement, certain problems remain. In particular, the professional disciplines have yet to develop a teaching body with a level of qualification comparable to that of the other social science disciplines. The greater possibilities offered by a labour market outside the university milieu, in which the doctorate is not required, no doubt explain this phenomenon. However, the lower level of qualification in the professional disciplines has a decided effect on research and on the training of researchers in these fields. The difficulties experienced by the professional disciplines in competing for extremely scarce research funds, for example, are explained, at least in part, by inadequate research training. This unequal development of social science disciplines is a problem that has eluded solution until now.

3. Age Distribution

The rapid expansion of the Canadian university system during the period 1960 to 1975, which was followed by a period of restraint during which few positions became available, created a situation that now poses serious problems for the development of university research. The relative youth of the university teaching body limits the possibilities for the employment of young graduates, a situation that will not change for several years. Moreover, the absence of new blood in the system creates a risk of stagnation in research and creativity. Maintaining a vigorous research capacity in the social sciences is one of the challenges facing Canadians during the coming decade. The situation is particularly critical in the social sciences where the university sector is the principal milieu for the conduct of science.

Table 20 shows that the social science professoriate is younger than the

Table 19. Proportion of Full-Time Teachers in the Social Sciences Holding a PhD, by Discipline, 1960-61 to 1981-82

Discipline	1960-61 %	1965-66 %	1970-71 %	1975-76 %	1980-81 %	1981-82 %
Economics	53.7	47.0	54.6	66.6	71.0	71.7
Psychology	71.0	69.1	70.0	78.8	83.7	84.8
Political Science	54.0	43.0	49.2	64.1	74.3	74.1
Sociology	56.1	42.9	47.2	60.0	72.6	74.7
Law	22.9	15.8	17.0	15.6	17.3	18.3
Education	22.2	22.3	35.8	40.8	54.7	56.1
Adminis. Sciences	13.0	20.1	29.7	39.0	43.2	43.9
Social Work	17.2	12.3	16.1	27.9	37.4	37.6
Anthropology	76.5	54.2	58.8	65.4	78.9	82.5
History	54.7	49.7	57.4	74.0	82.2	
Geography	55.4	47.0	52.8	69.3	76.4	78.5
Other	44.6	43.8	46.5	56.3	59.3	58.0
Total	45.1	38.9	44.6	54.8	62.6	61.3
All Fields	43.7	44.3	50.9	57.9	61.7	62.2

Source: A Statistical Portrait of Canadian Higher Education, Statistics Canada, Education, Culture and Tourism Division, Ottawa, 1983 and data specially prepared by Statistics Canada.

Table 20. Median Age of Full-Time Canadian Teaching Staff, by Field, 1960-61 to 1982-83

Field of Study	1960-61	1965-66	1970-71	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82[1]	1982-83[1]
Fine Arts and Applied Arts	42	40	37	39	40	40	41	41	42	43	43
Humanities	40	37	37	41	41	42	41	43	44	45	45
Education	42	40	39	40	41	41	42	42	43	45	45
Engineering and Applied Sciences	37	38	37	41	41	42	43	43	44	45	46
Math. & Phys. Sci.	37	36	36	39	39	40	41	41	42	43	44
Biological Sci.	40	39	39	40	41	41	42	42	42	43	44
Health Sciences	42	42	40	41	41	42	42	43	43	43	44
Social Sciences	37	36	34	37	37	38	38	39	40	41	41
Total	39	38	37	39	40	40	41	42	42	43	44

[1] Excluding Quebec

Source: A Statistical Portrait of Canadian Higher Education, 1983, and Teachers in Universities, 1984, Statistics Canada, Ottawa.

university teaching body as a whole. In 1960 the median age of social science professors was 37 years, two years younger than that of the entire university teaching body (39 years); in 1983 the difference increased to three years (median ages were 41 and 44 years respectively). Table 21 confirms the extent of the problem posed by the age structure in the social sciences, wherein about two-thirds (66.3 per cent) of the professors are less than 45 years old. In the short term, few positions will open up as a result of the retirement or death of individuals. The situation will be even worse if departments choose not to fill positions thus opened up.

4. The Citizenship Question
The question of the citizenship of the university professoriate in Canada has been debated since the beginning of the last decade, when many universities went outside the country to fill their teaching needs, despite Canadian investments in graduate studies.

There is certainly no way of turning back the clock. However, the problem now is to determine whether Canadian universities have succeeded in establishing a satisfactory balance between Canadian and foreign professors. Tables 22 and 23 show that about 25 per cent of social science teachers have foreign, usually American, citizenship and that a similar percentage of new positions are offered to foreign citizens. This may be explained by the fact that Canada does not produce a sufficient number of graduates, particularly in administrative science where the demand for teachers remains high.

The Student Body
The social sciences continue to attract students in spite of the apparently poor employment prospects for graduates in this field. Since 1975 approximately 50 per cent of Canadian university graduates have earned degrees in the social sciences. Tables 24 to 30 contain data on enrolment, degrees granted, and job prospects for new graduates with doctoral degrees in the social sciences.

1. Bachelor's Degree
Between 1970 and 1982 the number of students graduating with bachelor's degrees in the social sciences increased by 70 per cent (Table 24). This figure represents an increase of 44 per cent to 51 per cent of the proportion of all students graduating from the social sciences. By comparison, the proportion of students graduating with bachelor's degrees versus those graduating with similar degrees in the natural sciences remained constant (25 per cent) during the same period.

The growth index for the number of graduates suggests, however, that the social sciences have been in decline since 1978: the decrease in the number of social science graduates after 1978 is greater than that for other fields of study.

2. Master's Degree
During the past decade the social sciences have increased their share of enrolments and degrees granted at the master's level. In 1981 more than 60 per cent of MA enrolments (Table 25) and graduates (Table 26) were in a social science discipline.

This expansion of MA-level studies in the social sciences has especially benefited the professional disciplines (among them law, education, administration, and social work). Since 1970 the increase in enrolment in these four professional disciplines (N=10 690) has amounted to 77 per cent of total growth (N=13 877) in enrolment in the social sciences. Enrolment in administrative studies, for instance, has increased by 130 per cent, whereas most of the core disciplines (economics, psychology, political science, and sociology, for

Table 21. Age Structure of Full-Time Teaching Staff in the Social Sciences Compared to the Entire Teaching Staff, 1973-74 to 1981-82

	1973-74		1976-77		1979-80		1981-82	
	Soc. Sci. %	All Fields %	Soc. Sci. %	All Fields %	Soc. Sci. %	All Fields %	Soc. Sci. %	All Fields %
Less than 35 years	38.7	32.4	32.1	25.8	25.8	18.1	20.8	14.5
35 to 44 years	34.6	37.5	38.3	40.3	43.9	42.9	45.5	42.1
45 to 54 years	18.1	20.3	20.6	23.2	20.4	26.6	22.2	29.0
55 years and over	7.3	8.6	8.8	10.3	9.9	12.4	11.2	14.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: von Zur-Muehlen, Max, The Changing Profile of Full-Time Faculty at Canadian Universities, Statistics Canada, Ottawa, 1983

Table 22. Country of Citizenship of Full-Time University Teachers in Selected Teaching Fields, 1970-71 to 1983-84

(percentages)

Field of Study	Year	Canada	U.S.	G.B./Commonwealth	Europe	Other
Social Sciences	1970-71	61	23	11	4	1
	1976-77	72	16	7	3	2
	1979-80	76	14	6	3	1
	1980-81[1]	73	16	6	2	2
	1983-84[1]	75	16	6	1	1
Humanities/	1970-71	N/A	N/A	N/A	N/A	N/A
Fine Arts	1976-77	68	19	8	4	1
	1979-80	71	17	6	4	1
	1980-81	69	19	7	4	1
	1983-84	74	15	6	4	1
Natural/Health	1970-71	71	8	16	4	1
Sciences	1976-77	75	9	10	4	2
	1979-80	80	8	8	3	1
	1980-81	80	8	7	3	2
	1983-84	78	7	10	2	1
Total	1970-71	66	16	13	4	--
	1976-77	72	14	8	4	2
	1979-80	77	12	7	3	1
	1980-81	74	13	7	3	2
	1983-84	76	11	9	2	1

[1] Excluding Quebec

Source: Teachers in Universities and Canadian Science Indicators, Statistics Canada, Ottawa, 1983.

Table 23. Legal Status of Newly Appointed Full-Time University Teachers by Teaching Field, 1978-79 to 1980-81

Field of Study	Year	Cdn. Citizen (%)	Total
Social Sciences	1978-79	76.9	938
	1979-80	77.7	701
	1980-81	77.1	529
Humanities/ Fine Arts	1978-79	76.2	437
	1979-80	73.3	322
	1980-81	78.7	300
Natural/Health Sciences	1978-79	75.5	510
	1979-80	77.7	466
	1980-81	76.7	382
Not specified	1978-79	74.1	410
	1979-80	77.4	306
	1980-81	75.8	301
Total	1978-79	76.0	2 295
	1979-80	76.9	1 795
	1980-81	77.1	1 512

Source: von Zur-Muehlen, Max, Foreign Academics at Canadian Universities: A Statistical Perspective on New Appointments During the Seventies, Statistics Canada, Ottawa, 1981.

Table 24. Number of Bachelor's and First Professional Degrees Awarded by Field of Study, 1970 to 1982

Field of Study	1970	Indice[1]	1975	Indice	1978	Indice	1979	Indice
Social Sciences	**26 403**	**100.00**	**40 890**	**154.9**	**46 346**	**175.5**	**45 264**	**171.4**
Natural Sciences	14 445	100.00	18 983	131.4	22 107	153.0	22 275	154.2
Other	19 675	100.00	20 881	106.2	20 896	106.2	19 699	100.1
Total	60 523	100.00	80 754	133.4	89 349	147.6	87 238	144.1

Field of Study	1980	Indice	1981	Indice	1982	Indice
Social Sciences	**43 996**	**166.6**	**43 716**	**165.6**	**44 942**	**170.1**
Natural Sciences	22 833	158.1	22 238	153.9	23 093	159.9
Other	19 581	99.5	18 972	96.4	19 139	97.3
Total	86 410	142.8	84 926	140.3	87 179	144.0

[1] Index: 1970 = 100.00

Source: Canadian Science Indicators, Statistics Canada, 1983 and data specially prepared by Statistics Canada.

Table 25. Number of Master's Enrolments by Social Science Discipline, 1970-71 to 1981-82

Discipline	1970-71		1973-74		1976-77		1979-80		1980-81		1981-82	
	No.	Index	No.	Index	No.	Index	No.	Index	No.	Index	No.	Index
Economics	1 064	100.0	1 012	95.1	1 190	111.8	1 020	95.9	1 022	96.0	1 058	99.4
Psychology	1 071	100.0	1 428	133.3	1 736	162.1	1 641	153.2	1 639	153.0	1 540	143.9
Pol. Sci.	812	100.0	1 011	124.5	1 268	156.2	1 443	177.7	1 165	143.5	1 254	154.4
Sociology	954	100.0	889	93.2	850	89.1	1 121	117.5	826	86.6	923	96.7
Subtotal	3 901	100.0	4 340	111.2	5 044	129.3	5 225	133.9	4 652	119.2	4 775	122.4
Law	148	100.0	396	267.6	428	289.2	570	385.1	615	415.5	625	422.3
Education	5 447	100.0	7 686	941.1	9 679	177.7	10 176	186.8	10 558	193.8	10 919	200.5
Admin. Sciences	3 488	100.0	4 038	115.8	5 706	163.6	6 686	191.7	7 509	215.3	8 041	230.5
Social Work	1 102	100.0	886	80.4	842	76.4	1 118	101.4	1 185	107.5	1 290	117.1
Subtotal	10 185	100.0	13 006	127.7	16 655	163.5	18 550	182.1	19 867	195.1	20 875	205.0
Anthropology	240	100.0	322	134.2	438	182.5	486	202.5	477	198.7	481	200.4
Geography	659	100.0	806	122.3	855	129.7	726	110.2	769	116.7	857	130.0
History	1 182	100.0	1 250	105.7	1 285	108.7	1 036	87.6	1 007	85.2	947	80.1
Other	964	100.0	1 519	157.6	2 073	215.0	2 172	225.3	2 832	293.8	3 073	318.8
Subtotal	3 045	100.0	3 897	128.0	4 651	152.7	4 420	145.2	5 085	167.0	5 358	176.0
Total Soc. Sci.	17 131	100.0	21 243	124.0	26 350	153.8	28 195	164.6	29 690	173.3	31 008	181.0
All Fields	31 007	100.0	36 560	117.9	44 156	142.4	46 680	150.5	48 550	156.6	50 815	163.9
% Soc. Sci.	55.2		58.1		59.7		60.4		61.1		61.0	

N.B.: Index: 1970-71=100.0

Source: Universities: Enrolment and Degrees, Statistics Canada, Ottawa.

Table 26. Number of Master's Degrees Awarded by Social Science Discipline, 1970-71 to 1981-82

Discipline	1970-71	1973-74	1976-77	1979-80	1980-81	1981-82
Economics	269	401	413	383	377	370
Psychology	350	417	549	507	525	525
Pol. Sci.	159	256	309	274	240	281
Sociology	177	250	215	143	176	157
Subtotal	955	1 324	1 486	1 307	1 318	1 327
Law	39	35	60	74	131	144
Education	1 245	1 952	2 354	2 830	2 826	3 145
Admin. Sci.	971	1 234	1 693	1 970	1 902	2 015
Social Work	508	429	437	399	413	384
Subtotal	2 763	3 650	4 544	5 273	5 272	6 987
Anthropology	54	74	69	93	107	96
Geography	113	165	183	195	158	177
History	282	307	292	244	249	237
Other	166	322	408	579	587	624
Subtotal	615	868	952	1 111	1 101	1 134
Total Soc. Sci.	**4 333**	**5 842**	**6 982**	**7 511**	**7 691**	**8 149**
Total All Fields	8 461	10 630	11 555	12 351	12 432	12 903
% Soc. Sci.	**51.2**	**55.0**	**60.4**	**60.8**	**61.9**	**63.2**

Source: Universities: Enrolment and Degrees, Statistics Canada, Ottawa.

example) have experienced difficulties in maintaining their enrolment levels. More and more students selecting the social sciences as their field of study opt for professional fields, so that there has been a change in the distribution of MA-level students.

3. Doctoral Students

The social sciences have also increased their share of doctoral enrolments and graduates over the past decade. In fact, while the total enrolment in doctoral programs has increased modestly (7.4 per cent) over this period, the number of doctoral students in the social sciences has increased by 43.9 per cent, from 4112 to 5916 (see Table 27).

Once again it is the professional disciplines that have benefited most from this increase. More than half (56.9 per cent) of the increase in enrolment since 1970 has taken place in the professional disciplines, particularly in administrative science, which has grown from 64 doctoral students in 1970 to 226 in 1981, representing an increase of 253 per cent. This phenomenon underscores the change that has taken place in the configuration of the student body at the graduate level.

However, it is in terms of the rate of graduation that the social sciences have made the most progress since 1970. Only one PhD degree in every five that was granted in that year was in the social sciences, whereas one third of enrolments in that year (33 per cent) were in the social sciences. In 1981, 37 per cent of new PhD degrees were in the social sciences, as a result of an acceleration in the rate of degree-granting recorded in most of the disciplines. Between 1970 and 1980 the proportion of students obtaining their PhD annually rose from 3.5 per cent to 9.1 per cent in political science, from 1.9 per cent to 8.5 per cent in sociology, and from 1.6 per cent to 10.2 per cent in administrative science; thus, in the social sciences as a whole, the rate of graduation at the doctoral level rose from 6.6 per cent to 11.3 per cent. The decrease in the number of years required to complete the requirements for a PhD degree seems to be the most plausible explanation for this rise in the productivity of doctoral programs in the social sciences.

PhD Graduates and the Labour Market

Most of the data concerning the employment of doctoral graduates have been compiled from surveys conducted in 1976 and 1978; the absence of reliable, up-to-date data precludes any in-depth analysis of current trends. This section can only sketch the employment situation of doctoral graduates in all the social sciences.

From a global perspective, the difficulties encountered by doctoral degree-holders are due as much, if not more, to the economy's inability to produce a sufficient number of jobs as to an overproduction of graduates. The problems peculiar to the social sciences only exacerbate a general malaise.

Tables 28 and 29 show the rates of employment for graduates of the principal fields of study, but from two different perspectives. Table 28 depicts the employment situation two years after graduation, whereas the data in Table 29 focus on those graduates who have just obtained, or are about to obtain, a degree during the year of the survey.

These two tables suggest that, although social science graduates do not seem to experience unusual dificulty in finding employment, many of them may be underemployed and lack the opportunity to put their abilities to the best use. From both perspectives the social sciences show rates of employment and unemployment comparable with those of other fields of study. Only doctoral

Table 27. Total Number of Doctoral Enrolments (E) and Degrees (D) in the Social Sciences, by Discipline, 1970-71 to 1981-82

Discipline	1970-71[1]			1973-74			1976-77			1979-80			1981-82		
	E	D	%[2]	E	D	%	E	D	%	E	D	%	E	D	%
Economics	428	14	3.3	582	39	6.7	632	77	12.2	635	60	9.4	645	61	9.5
Psychology	929	86	9.3	1 552	121	7.8	1 335	153	11.5	1 289	154	11.9	1 228	185	15.1
Pol. Sci.	198	7	3.5	294	20	6.8	316	19	6.0	319	30	9.4	297	27	9.1
Sociology	308	6	1.9	445	23	5.2	509	46	9.0	447	49	11.0	481	41	8.5
Subtotal	1 863	113	6.1	2 873	203	7.1	2 792	295	10.6	2 690	293	10.9	2 651	314	11.8
Law	66	3	9.1	60	5	8.3	44	9	20.5	53	6	11.3	56	8	14.3
Education	874	78	8.9	1 183	122	10.3	1 437	157	10.9	1 548	193	12.5	1 718	203	11.8
Admin. Sci.	64	1	1.6	103	10	9.7	121	12	9.9	200	18	9.0	226	23	10.2
Social Work	28	2	7.1	37	6	16.2	61	5	8.2	54	3	5.6	59	6	10.2
Subtotal	1 032	84	8.1	1 385	143	10.3	1 663	183	11.0	1 855	220	11.9	1 059	240	11.7
Anthropology	156	6	3.8	173	10	5.8	222	22	9.9	219	23	10.5	242	19	7.8
Geography	195	14	7.2	243	24	9.9	237	28	11.8	217	28	12.9	232	29	12.5
History	515	29	5.6	558	35	6.3	535	55	10.3	447	54	12.1	461	39	8.5
Other	351	27	7.7	334	32	9.6	374	39	10.4	243	26	10.7	271	28	10.3
Subtotal	1 217	76	6.2	1 308	101	7.7	1 368	144	10.5	1 126	131	11.6	1 206	115	9.5
Total Soc. Sci.	4 112	273	6.6	5 564	447	8.0	5 823	622	10.7	5 671	644	11.4	5 916	669	11.3
Index Soc. Sci.	100.0	100.0		135.3	163.7		141.6	227.8		137.9	235.9		143.9	245.0	
Total All Fields	12 623	375	10.9	13 172	1 929	14.6	13 260	1 693	12.8	13 028	1 803	13.8	13 557	1 816	13.4
Index All Fields	100.0	100.0		104.3	140.3		105.0	123.1		103.2	131.1		107.4	132.1	
% Soc. Sci.	32.6	19.8		42.2	23.2		43.9	36.7		43.5	35.7		43.6	36.8	

[1] Index: 1970-71= 100.0

[2] Proportion of students enrolled who receive their degree.

Table 28. Employment Rate of 1976 PhD Graduates, Residing in Canada in December 1978, by Field of Study

Field of Study	No. Respondents	Employment			Unemployment		
		Full Time	Part Time	Employment Rate	Involuntary	Voluntary	Total
		(percentage distribution)					
Social Sciences	325	90.8	6.1	96.9	2.2	0.9	100.0
Anthropology	8	100.0	--	100.0	--	--	100.0
Economics	25	100.0	--	100.0	--	--	100.0
Education	88	92.1	4.5	96.6	2.3	1.1	100.0
Geography	16	93.8	--	93.8	--	6.2	100.0
History	27	81.5	7.4	88.9	11.1	--	100.0
Psychology	89	86.5	11.2	97.2	1.1	1.1	100.0
Sociology	19	100.0	--	100.0	--	--	100.0
Other	53	90.6	7.6	98.1	1.9	--	100.0
Humanities	90	73.3	18.9	92.2	5.5	2.2	100.0
Natural Sci. & Engineering	226	92.0	2.7	94.6	2.7	2.6	100.0
Health and Bio. Sci.	98	89.8	5.1	94.9	3.1	2.1	100.0
Total	739	88.9	6.5	95.4	2.8	1.8	100.0

Source: 1976 University and College Graduates: Doctoral Degree Recipients, Statistics Canada, Ottawa, 1979.

Table 29. Employment Rate of 1981 and 1982 PhD Graduates, by Field of Study

Field of Study		No. Respondents	Employed			Unemployed		
			Full Time	Part Time	Rate of Employment	Involuntary	Voluntary	Total
			(Percentage Distribution)					
Social Sciences	1981	347	81.2	6.9	88.2	11.2	0.6	100.0
	1982	381	80.8	5.0	85.0	12.6	1.5	100.0
Humanities	1981	173	64.7	12.7	77.5	20.2	2.3	100.0
	1982	136	52.6	13.6	66.2	29.4	4.4	100.0
Nat. Sci. and	1981	222	89.6	1.4	91.0	7.2	1.8	100.0
Engineering	1982	254	83.9	1.9	85.8	12.6	1.6	100.0
Bio./Health	1981	106	77.3	1.0	78.3	15.1	6.6	100.0
Sciences	1982	143	67.8	2.8	70.6	19.6	9.8	100.0
Total	1981	848	79.6	5.9	85.5	12.5	2.0	100.0
	1982	914	75.5	5.1	80.6	16.2	3.3	100.0

[1] Excluding those who accepted a postdoctoral research scholarship.

Source: Post-Graduation Plans of PhD Graduates, Statistics Canada, 1982 and 1983.

graduates in the natural sciences and engineering benefit from a more favourable situation. In 1978, two years after graduating, those holding PhD degrees in the social sciences experienced the lowest unemployment rate (2.2 per cent); between 1981 and 1982 these graduates were virtually unaffected by the increase in unemployment.

The proportion of doctoral graduates who are able to secure part-time employment only is generally higher in the social sciences than in the natural sciences and engineering. In 1978 this proportion was 6.1 per cent in the social sciences versus 2.7 per cent in the natural sciences and engineering, 5.1 per cent in the biological and health sciences, and 18.9 per cent in the humanities. These figures did not change throughout 1981 and 1982.

Given the scarcity of full-time jobs, social science graduates may be underemployed in comparison with their colleagues in the natural sciences. What is more, the same individuals are often hardest hit by fluctuations in the employment rate. Table 29 shows that graduates holding part-time jobs have been the main victims of the reduction in the employment rate in the social sciences. However, the opposite phenomenon occurred in the other fields of study, where a decrease in full-time employment accounts for most of the reduction in the employment rate between 1981 and 1982.

Table 30 shows how the employment of PhDs has changed during the 1970s. According to the table, social science doctoral graduates work largely in the education, public administration, health services, and services to management sectors, that is, in the public and parapublic sectors. These sectors employ the highest proportion of doctoral graduates in all fields of study. In the biological and health sciences, as in the social sciences, over 80 per cent of PhDs work in the public sector, and almost all humanities graduates find work there. Not only is the percentage of natural sciences and engineering graduates working in the public sector lower, but it has declined over the past decade, from 72 per cent in 1971 to 59 per cent in 1978. This means that the private sector is a very important job market for natural sciences and engineering graduates, a market that is not as open to graduates in other fields of study.

The fact that many doctoral graduates find jobs in education helps to explain why so many are concentrated in the public sector. Even though the proportion of social sciences doctoral graduates occupying positions in education has decreased, this sector is still their principal source of employment: in 1978 approximately 39 per cent of PhDs employed in education were social science graduates.

Although public administration attracts more natural and health sciences graduates than social science graduates, it is nevertheless the second largest employer of social science graduates. Its relative importance has remained constant during the 1970s. The availability of research positions for natural and health scientists in public administration no doubt explains this trend. However, between 1971 and 1978 the social sciences increased their share of positions in public administration from 27 per cent to 34 per cent. Despite this progress, social science graduates remained underrepresented in this employment sector in 1978.

The health and welfare sector also employs many social science graduates. Between 1971 and 1978 the percentage of social science graduates working in this sector increased considerably, from 5.1 per cent to 14.65 per cent. The bureaucratization of this employment

Table 30. Distribution of PhD Graduates Two Years Following Graduation (1971 and 1978), by Sector of Employment and Field of Study

Field of Study	Year	Number	Education	Health	Pub. Admin.	Management	Manufac.	Commerce/ Finance	Transpo. Communi.	Other
			(percentage distribution)							
Social Sci.[1]	1971	221	69.9	5.1	12.0	1.9	--	--	--	9.5
	1978[2]	331	61.0	14.6	13.7	5.5	--	--	--	--
Humanities	1971	101	95.5	--	--	--	--	--	--	--
	1978[2]	117	86.5	--	6.3	--	--	--	--	--
Biological/	1971	137	62.9	3.3	23.7	--	6.0	--	--	4.1
Health Sci.	1978[2]	93	46.2	9.2	27.7	--	6.6	--	--	5.6
Nat. Sci. &	1971	237	55.7	--	15.9	6.8	16.1	--	--	--
Engineering	1978[2]	283	41.9	--	17.2	5.9	12.6	--	--	--
Total	1971	714	68.2	2.2	13.6	2.8	6.7	--	--	5.3
	1978[2]	896	57.3	9.8	14.9	5.8	5.6	--	2.5	2.2

[1] Social Sciences include education but not history

[2] Graduates residing in Quebec are not included in the sample.

Source: W.G. Picot, University Graduates and Jobs: Changes During the 1970s, Statistics Canada, Ottawa, 1983.

N.B.: A dash indicates that the number is too small to [illegible] statistically reliable estimate.

sector explains in part why so many social science graduates have been hired.

Finally, the only private sector in which social science graduates are represented is the services to management sector. This sector has come to rely more heavily on the services of social scientists over the past decade. In 1971 social science graduates held 18 per cent of the jobs in this sector; by 1978 this figure had risen to 35 per cent. This latter figure is much more in line with the number of graduates in the social sciences in that year.

Conclusion

Despite a dramatic increase in their numbers, the employment rates for social science graduates is comparable to that for graduates in other fields of study. The teaching profession shows a level of qualification among social scientists that compares favourably with that of the university professoriate as a whole. The rate of graduation of social scientists from doctoral programs has improved markedly since 1970, and social science graduates appear to experience fewer difficulties than is generally assumed in securing employment. It is also clear that the professional disciplines, particularly administrative science, are expanding more rapidly than other disciplines.

However, serious problems loom on the horizon. Until now attention has been centred on the problem of renewing teaching staff in the university system. The problem is both more acute and more general for the social sciences than for other fields of study. Indeed, although the private sector has a research capacity that Statistics Canada refuses to recognize, it is the university system that employs most social science researchers. The federal government's cutbacks to its social science research capacity at a time when employment prospects in the universities are particularly bleak pose a serious threat to the future of social science research in Canada. Energetic measures must be adopted to ensure that Canadians will benefit from the work of new graduates in the social sciences. These measures should promote, in particular, the diversification of centres of research, since it is unlikely that the university sector alone will be able to satisfy all of society's needs for social science research.

Communication of Research Results

Communication of research results is an integral part of the research process. John Adair's study,[1] for example, showed that not only is there a significant level of research activity in the social sciences, but also that a large proportion of this activity is brought to fruition in the form of public documents. Some 86 per cent of respondents in this study indicated that they have published at least one journal article, book, or chapter in an edited book during a three-year period. Beyond such general observations, however, little is known about this dimension of the research process. We know, for example, that the SSHRC assists more than 100 scholarly journals in the human sciences. SSHRC's annual reports, however, show only the amounts paid annually to each subsidized journal; they do not give further details on the types of journals published, print runs, quantities, costs, and so on. Any assessment of research communication in Canada must therefore be based on disparate and partial data.

Forms of Publication

Table 31 indicates the relative importance of the various types of publication in the social sciences. The table shows that refereed journals are the principal means of communicating research results, followed by research reports and collected works. John Adair's study showed that despite the importance of journals, every social science researcher

Table 31. Distribution of Manuscripts Published by University-Based Social Scientists During a Three-Year Period (1980-81 to 1982-83), by Type of Publication

Type of Publication	Percentage distribution
Refereed Journal	43.4
Book	5.4
Book Chapter or Edited Book	20.3
Research Report	20.4
Nonrefereed Journal	10.6
Total (absolute value)	7.01

Source: Adair, John, Research Activity in the Social Sciences: Funding Productivity, and Attitudes of University-Based Social Scientists, Report of a consultation contract to the SSHRC, March 1983.

Table 32. Support of Learned Journals by the Canada Council and the Social Sciences and Humanities Research Council, 1970-71 to 1982-83

Year	Number of Journals	($ thousands)	Average Grant per Journal ($)
1970	34	277.0	8 147
1971	36	327.9	9 108
1972	50	442.3	8 846
1973	68	615.7	9 054
1974	72	694.7	9 649
1975	72	764.8	10 622
1976	83	1 032.6	12 441
1977	82	1 086.0	13 244
1978	85	1 094.0	12 870
1979	84	1 101.9	13 118
1980	95	1 265.5	13 321
1981	107	1 456.6	13 613
1982	115	1 510.2	13 132

Source: Annual Reports of the Canada Council and SSHRC.

publishes, on average, one book every eight years.

Learned Journals

The role of scholarly journals in communicating research in the social sciences cannot be overestimated. Table 32 shows the growth of the number of journals subsidized by SSHRC and of the resources allocated to this program. Despite this aid, the journals are facing serious financial difficulties. The real value of SSHRC grants has declined because of inflation, and because funds allocated to this program have not kept pace with the increase in the number of journals supported. SSHRC's policy is to offer the minimum necessary support to all journals demonstrating scholarly merit and falling within its mandate.

Another source of the difficulty is the limited distribution of scholarly journals. Table 33 shows that journals are printed in numbers that are almost equivalent (70-75 per cent) to the number of people subscribing to them. In other words, apart from the grants they receive, the journals' only other significant source of revenue is their subscriptions, and these do not appear to be increasing. Journals draw little revenue from the sale of single copies. This is explained by the fact that few scholarly journals have a marketing strategy. Thus their market consists almost entirely of university libraries and university teachers.

Scholarly Publishing

Restricted circulation also plagues scholarly publishing. Table 34 shows that social science books rarely have print runs of more than 1800 copies. Between 1977/78 and 1983/84 the average print run of books subsidized by the Aid to Scholarly Publication Program (ASPP) was only 1620 copies. The low print runs mean that the ASPP must assume almost half (44.3 per cent) of the unit cost of producing social science books. In fact, the program encourages limited circulation because the publisher with the highest production cost and the smallest print run benefits most from the assistance program.

Thus the principal problem facing scholarly communication in Canada is one of limited print runs and increasing costs. Too often the fact that a significant portion of the costs is linked to marketing -- that is, to inventory, publicity, and distribution expenditures -- is ignored. Consequently, without a more systematic approach to marketing, efforts to use new technologies are unlikely to bear the expected fruits.

Conclusion

Social science research in Canada offers a potential that is waiting to be realized. The tendency to concentrate social science research within the universities, which are already struggling with problems of financial cutbacks that frequently result in increased teaching loads, creates serious problems. Yet there is probably no other alternative but to capitalize on our strengths, that is, on the university system. Ways of supporting university research in the social sciences must be found so that Canadians can benefit fully both from the new knowledge created and from their investments in the university sector.

Notes

1. T.H.B. Symons and J. Page, A Question of Balance (Ottawa, Association of Universities and Colleges of Canada, 1984), 18.

Research Funding in the Human Sciences

1. In the absence of disaggregated data, this chapter deals with the human sciences, that is, the social sciences and humanities.

Table 33. Subscriptions and Print Runs of 12 Learned Journals in the Human Sciences, 1978 to 1980

	Subscriptions			Print Runs		
	1978	1979	1980	1978	1979	1980
(A)	2 400	2 339	2 284	3 000	3 200	2 900
(B)	1 745	1 566	1 552	N/A	N/A	2 000
(C)	N/A	431	520	N/A	700	700
(D)	1 930	N/A	1 821	2 500	2 500	2 500
(E)	1 180	1 400	1 538	1 900	1 900	2 050
(F)	537	596	659	1 200	1 200	1 200
(G)	541	564	590	N/A	N/A	N/A
(H)	325	325	420	400	400	750
(I)	850	840	803	1 130	1 086	1 030
(J)	N/A	N/A	262	N/A	N/A	N/A
(K)	907	897	892	1 050	1 050	1 050
(L)	915	917	942	1 238	1 329	1 406

Note: The journals remain anonymous to respect confidentiality. Of the 12 journals, 11 are association journals. The first six are social science journals and the rest publish in the humanities.

Table 34. Average Print Run of Social Science Books Supported by the Aid to Scholarly Publication Program, 1977-78 to 1983-84.

Year	N/Books	Total Print Run	Average Print Run
1977-78	61	94 290	1 546
1978-79	62	93 762	1 512
1979-80	42	75 687	1 802
1980-81	47	87 966	1 872
1981-82	56	84 434	1 508
1982-83	62	95 567	1 541
1983-84	48	74 707	1 556

Source: Aid to Scholarly Publication Program, SSFC and CFH.

2. To keep tables to a minimum, detailed data concerning the distribution of resources between the human and natural sciences in constant dollars is not reproduced here. These data are, however, available on request.

3. Related scientific activities include data collection, economic and feasibility studies, operations and policy studies, information services, aid to education and museum services.

4. John Adair, Research Activity in the Social Sciences: Funding, Productivity and Attitudes of University-Based Social Scientists (Ottawa: Social Sciences and Humanities Research Council, March 1983).

Communication of Research Results

1. John Adair, Research Activity in the Social Sciences: Funding, Productivity and Attitudes of University-Based Social Scientists (Ottawa: Social Sciences and Humanities Research Council, March 1983).

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KEYNOTE ADDRESS

André Raynauld, Professor, Department of Economics, University of Montreal

Conditions for the Advancement of Social Science Research

One of the purposes of this conference is to examine the relevance of research in the social sciences. The notion of relevance for a speech just as much as for a full-fledged research project is a great deal more complex than it may first appear. Should it be relevant to all or just some of the audience? Relevant to the past, the present, or the future? Relevant to our society here in Canada or to the world at large?

The reason relevance is so difficult to achieve is that research involves a large number of parties, each of whom has a particular interest in the end product. In the language of economic analysis, these parties include consumers and producers of research as well as financial backers and administrative and support bodies.

Expressing the problem in this way helps illustrate a basic principle: furthering social science research will depend on the degree to which researchers reconcile the objectives and constraints of each of the partners in this enterprise. Such reconciliation goes by the name of "science policy." With this proposition in mind, I will examine the needs of social research, the production of knowledge, and lastly the problems of organization and funding.

Needs for Social Research

The first question that comes to mind concerning social science research may appear superfluous: is such research necessary and if so, why? To respond affirmatively requires that two conditions be met: first, there must be unresolved problems, which, I suppose, everyone agrees there are; second, the social sciences must be able to provide solutions to such problems. In other words, social scientists must be confident that a new or more profound understanding of social realities will help resolve the problems they encounter.

I do not need to dwell on this first issue except perhaps to remind you that science does not have an answer to every problem in society; a touch of wisdom is also required. However, no one questions the fact that research on social behaviour and social relations is indispensable. For example, following publication of the first report to the Club of Rome on limiting population growth in the world, there was broad consensus that effective constraints to the progress of humanity have social rather than physical origins and that, if catastrophes do occur, they will have to be blamed on human ignorance or behaviour and not on nature itself.

Some of my colleagues at the University of Montreal recently found that labour conflicts in Canada stem from the different perceptions of the two negotiating parties on the short-term evolution of the economic situation. This is a concrete and straightforward example of research explaining a serious social problem; it also indicates that if more sound and complete information were put at the disposal of negotiators, labour conflicts would be reduced. Examples of this sort show that social science research is both necessary and useful.

My second point is that, unlike the subjects of investigation in the natural or physical sciences, social problems and their solutions have local characteristics that require local, original research. Social innovations cannot be imported from abroad. There is nothing worse than so-called scientific work that consists of transposing foreign models

without regard to the conditions in which the hypotheses are to be applied. The most striking examples in the field of economics are the efforts to reason in terms of a closed economy. Although this may be legitimate when working with American data, it is completely inappropriate for Canada. Canada as a unique society must assume the costs of social research, in other words, assume the costs of producing its own knowledge.

Third, social scientists need to identify the consumers of social science research. If such research is necessary, they should know for whom it is necessary so that they can penetrate the abstractions represented by the terms "society" or "collectivity."

Clearly, social knowledge is needed by many people in many organizations, the foremost being government. Government authorities participate in research in a variety of ways, and these should be clearly identified. A government is a direct consumer of knowledge and research. It defines and manages a large number of programs that require hypotheses, detailed information, and evaluations. For what I will call internal objectives, a government can draw on its own public servants, develop ad hoc teams, or seek assistance from other institutions such as universities or industry. If a government discovers that it does not have at hand all the information it requires, it has only to commission a new study. And, for very good reasons, it does not hesitate to do so.

Governments are also the principal source of funding for research in general, particularly that conducted in universities. This role consists of supporting and facilitating the work of the scientific community. Furthermore, governments interpret the research needs of society as a whole. They develop orientations and policies, establish priorities, and use the financial or regulatory levers at their disposal to favour or reject issues.

Government, however, is not the only consumer of research, nor the only element in society that has research needs. The largest consumer of knowledge is the education system, at all levels. Why? Quite simply because the education system is expressly responsible for transmitting knowledge.

There are also the researchers themselves who, in order to produce new knowledge consume more of it than anyone else. This element of the knowledge production chain is too often neglected. In this respect, the researchers are in the same situation as a business firm, which must obtain raw materials in order to manufacture its products. It is therefore incorrect to suggest that researchers are in a conflict-of-interest situation when they ask for increased research support or when they attempt to define the continually discussed priorities of government. They are as much concerned with their own research needs and need for information as they are with what they are seeking to produce. However, their requirements are just as legitimate as those of government and have just as high a priority. Lastly, industry, various intermediary bodies, and the public also have requirements for old and new knowledge that must be met.

It thus becomes evident that the needs for research are highly diversified, calling for a variety of approaches and considerable imagination on the part of those assessing what may be relevant or useful. It also follows from the consumer demand for knowledge that it is quite impossible to establish an objective order of priorities for various fields of investigation. All of which goes to show that the introduction of strategic, thematic, or directed funding programs

are, in fact, purely arbitrary. These preferentially treated areas are no more relevant than all those left by the wayside. In the words of Paul Lacoste, rector of the University of Montreal, the autonomy of the university "must be sufficient to enable it to discover, on its own initiative, the needs of society."[1] And what is valid for the university should also be valid for industry, or the scientific community, for students -- indeed, for all citizens. The government does not have a monopoly in defining society's research priorities.

The Production of Knowledge

Having examined the need for research, we can now look at the conditions required for the production of research. What are the factors that encourage or impede progress, at least from the perspective of the researchers themselves?

The Research Conducted

From the outset it must be said that there is a pool of ignorance about the research produced in the field of social sciences in Canada. The only Canadian study available is the one conducted by John Adair and Robert Davidson in 1983. This study showed that, over a three-year period, the average university social science professor produced 12.3 research documents of all types and had 5.6 publications to his or her credit.[2] It also revealed that professors devote 26 per cent of their time to research and that this percentage increases with the size of the university.[3]

Other indicators of research activity do exist, but they relate to particular disciplines. For the economic sciences, authors have calculated the number of pages published between 1978 and 1983 in the world's 24 major scholarly journals. These data are broken down by university and departments of economic sciences in the United States, Canada, and elsewhere are ranked in terms of the volume of published articles.[4] Ten or so Canadian universities are relatively well-placed in this classification. (I should be interested to know if any readers are aware of other research activity indicators in other disciplines.)

There is little point in insisting on the severe limitations of calculations such as these. Little credit is given to those who publish in journals other than those used in the sample, those who write books rather than articles, or those who write in French (all the journals covered by the sample are published in English). For whatever reasons, these data are all that are available. This fact alone should be an encouragement to undertake a quantitative evaluation of research activity in Canada.

Ignorance of the volume of research actually conducted should not, however, preclude discussion of the conditions required to advance such research. Let me now examine a fairly broad range of structural problems relating to the management, organization, and funding of research and to the problems of incentives for those involved n this field of endeavour.

Research Institutions

The first problem relates to the centres in which research is conducted. The Statistical Profile of the Social Sciences in Canada reveals that, in 1983, almost $500 million was devoted to social science research. This represented 8.5 per cent of the $5 billion total budget, the bulk of which goes to natural sciences and engineering, including the health sciences.[5] Although the following figures may be distorted because, hypothetically, industry is not recognized as conducting social science research, the Profile states that 82 per cent of expenditures are made in the universities, 13 per cent in the federal government, and 5 per cent in the provincial

governments.[6] The same pattern holds true for the number of researchers. In 1983 there were just over 7000 full-time equivalent researchers in the social sciences, the majority of whom were university professors.[7]

In addition to the fact that, in real dollar terms, total social science research expenditures dropped by 24 per cent between 1971 and 1983,[8] the major topic of concern is the relative weakening of the universities. In 1980 the Science Council drew attention to what it called the demographic peril facing Canadian universities. Although the number of social science faculty staff increased fourfold during the 1960s, there was hardly any change between 1976 and 1982.[9] Such stagnation in the number of potential research staff can only lead to a severe decline in research work as a result of aging faculty staff and reduced mobility.

What is more, a number of observers fear that governments are deliberately accentuating this trend. Lacroix and Dulude have shown that in terms of total R&D expenditures Canada placed 11th among the 12 most industrialized countries of the OECD (Organisation for Economic Co-operation and Development) in its support for university research.[10] They also expressed grave reservations about the frequently voiced wish of the federal government to increase the private-sector portion of R&D expenditures to 65 per cent. Canada is in a better position only with respect to its support for the humanities.[11] Basing his findings on more concrete data and restricting himself to research on the North, Marc-Adélard Tremblay has also noted a trend in government to favour private contract research rather than university research.[12]

Because the university plays a key role in social science research, any reduction in this role, even in relative terms, should be a matter of grave concern. It must be borne in mind that the university is the only place in which free, independent, theoretical research can be conducted. It is the only place in which the fundamental tools of research exist (such as general and specialized libraries) and where both research and training for researchers are the very raison d'être and daily concern of those involved.

Even so, social science research does have a place in industry and government. A reasonable science policy should respect the primary vocations of different institutions. Such a policy would mean that each would specialize in different areas according to research content, approach, or category. Diversified research production of this type would meet the variety of needs I have already outlined.

The debate about independent versus directed research should be resolved by this pluralistic approach to policy. No one would deny a government department or business enterprise the right to establish priorities for its immediate research needs or to give special attention to certain methodologies or to commercial or policy objectives. What social sciences have to fight is the imposition of such priorities and approaches on the scientific community as a whole, an imposition dressed up in the form of so-called strategic or relevant programs.

The University as a Privileged Research Centre

The same absolute freedom in research should also apply within the universities themselves. However, there is often a tendency to invent all sorts of categories, to which are attached quite unnecessary criteria of quality and preference. This is how specious distinctions are made between basic and

applied research, among institutional, historical, and analytical research, between subsidized and commissioned research, and especially -- watch out for the sacred cows -- between disciplinary research and multi-, inter-, or cross-disciplinary research. What might be called credentials of conformity or quality usually come from university administrations and support bodies but they also, unfortunately, come from self-appointed schools of methodology and ideology within the scientific community itself.

In my view it is sufficient to define a research project as valid if it furthers knowledge of society and establishes a correct relationship between cause and effect. In this respect any good research project should be viewed as relevant. Furthermore, if the research is properly conducted, why should it have to be interdisciplinary, as is often required of university research centres or institutes? Why should it also have to have a harmonious and integrated design? If, in the words of Marc-Adélard Tremblay, phenomena require explanations "in the plural,"[13] then good research will itself meet this requirement.

Another vigorous debate has to do with subsidized versus commissioned research, commissioned research being a dirty word in the university community, even though it can only be judged by its results. Some commissioned work never produces a scientific study; just as some subsidized research never produces a publication. Yet it is easy to quote a dozen volumes that owe their origin and existence to a research contract. There is both good and bad commissioned work, the bad consisting of confidential studies, brief consultations (some even by telephone), or work that produces no publishable research, no content that can be submitted for judgement by peers. On the other hand, medium- or long-term contracts relating to work of a public nature and containing access to information and publication clauses are just as legitimate and acceptable for a professor as research grants.

However, since the university is neither a board of trade, nor a ministry, nor a commercial institute, university research differs from that undertaken by those institutions. It will be directed more toward the advancement of a particular discipline; it will be more innovative, more original, and more concerned with theory and methodology; and it will closely obey the rules of scientific creation and verifiability.

For these reasons, university research will, more than any other research, show all the characteristics of a public good, inasmuch as the benefits from discovery will not be the exclusive property of a private producer or investor. That is why university research should be supported by the state or by philanthropic foundations. Otherwise, it will regress and succumb to narrow utilitarian priorities.

University research is increasingly performed in independent research centres or institutes that provide the necessary management, support, and secretarial services. Sometimes they provide a more critical, stimulating, and challenging work environment than that found in traditional structures designed for individual researchers. Even more important, these centres enable researchers to remove themselves for periods of time from teaching duties, identified by the Adair study as the major obstacle to increased research in the universities.

Such centres are a relatively recent innovation in the social sciences. More time and experience will be required to determine the most effective administrative and operational structures; for this reason, we should avoid developing

any hasty regulatory standards for research centres and institutes. It does, however, seem that such centres benefit from large economies of scale and are most useful when they reach a certain size. If this is true, researchers should be encouraged to associate themselves with existing centres whenever possible rather than trying to create a new administrative structure each time two professors meet. By the same token, the centres should become more accessible and adopt more varied and flexible research programs to minimize project management and infrastructure costs.

Although the main purpose of universities is to teach and provide training, the principal management structures are not primarily oriented toward research and internal financing. It thus seems quite likely that researchers will increasingly wish to join forces with these centres to obtain the necessary equipment and manage everincreasing budgets. The future of university research can thus be said to dwell largely in research centres, institutes, and laboratories. If so, funding bodies and governments will have to decide if research services should continue to be offered in the marketplace at marginal cost without the stable institutional support that makes such research possible. Paquet argues that, contrary to the tradition prevailing in the natural sciences, social science research is funded almost exclusively on the basis of individual projects, regardless of the need for continuity and without any long-term commitment to researchers or research institutions.[14] I would welcome a move from the funding of individual projects toward the funding of research programs.

Other initiatives will also be required to further the cause of research. In 1980 the Science Council suggested a number of formulae, including the creation of independent research chairs or associate research positions. In my opinion, temporary leave from other duties or occasional sabbaticals are the most promising means of increasing research and advancing knowledge.

One last major consideration that explains the volume and rise and fall in research work is the system of incentives of various kinds for researchers. This is a delicate issue, one that is generally avoided. There are financial incentives which can be positive or negative; professional incentives, which may relate to status or reputation; and personal incentives, which may involve ambition, intellectual satisfaction, energy, or a sense of resignation.

For discussion purposes, I should like to suggest that financial incentives, usually the greatest determining factor in professional life, are virtually nonexistent in university research. Professors' salaries are based on a rigid schedule linked to seniority rather than productivity. This is true for all but a few rare instances of income supplements or bonuses, themselves often cast in stone at the entry level or upon promotion.

Incentives relating to status are greatest in the early years of a researcher's career because, in practice, the only obstacle a professor has to overcome is that of obtaining tenure and then of being promoted to a full professorship. To pass through these stages, a professor is condemned to excellence. This obligation is made all the more imperious and severe (and sometimes excessive) because the selection boards know that once a full professorship is granted, they will have no further opportunity to reassess the candidate's performance. However, these assessments and promotions usually take place in the first third of a researcher's career and have no effect on the remaining two-thirds.

Other than remuneration and status, the quality of the work environment may affect scientific production as well as the number and quality of master's and doctoral students and interpersonal and interinstitutional competition for scientific recognition. This, at least, is the explanation given (above and beyond preselection criteria) for the fact that large universities and departments are more productive than small institutions. In other words, talent itself can develop and be cultivated more successfully in a more favourable context where competition is keener.

Research Funding

Overall funding in real dollar terms dropped by 24 per cent in Canada between 1971 and 1983. If research is not more flourishing and productive, one need hardly indulge in long and painful introspection to discover the cause. Funding is not the only condition for developing more research but it is a necessary prerequisite in most areas of research. If the decrease in funding is not reversed over the short term, I believe that governments will get no more than the research and information they deserve. Unfortunately, social problems do not get simpler over time, they get more complex. The alarm bells are sounding for society at large and should be audible to any sensitive government. Doubts are being cast about economic and social policies, the respective roles of production and redistribution, and their consequences for values of freedom, justice, and equality.

Canada has just passed through the painful experience of the 1970s, which saw a significant drop in the standard of living and the most serious world recession since the 1930s. If ever there was a period in which study, careful reflection, and scientific innovation were necessary, it is now. Changes in the economy have provoked the epistemological crisis of macroeconomics; Marc-Adélard Tremblay also talks about an epistemological crisis in the social sciences,[15] all of which suggests to me that the phenomenon goes well beyond the discipline that I represent. There is confusion about what direction to take and how to conduct public administration. However, beyond political judgements, indispensable as they always have and always will be, the contribution of knowledge itself is a permanent and ongoing yardstick for assessing various situations. To try to change the world without understanding it properly is to court disaster.

Nevertheless, a great deal more must be done. It is amazing that scientists professionally versed in such matters should to this day have failed to measure their own output and assess their performance and contribution to the advancement of knowledge. What is even more astonishing is that funding bodies such as the Social Science and Humanities Research Council have never succeeded in finding out what the grants and other funding they provided have produced in the way of effective research and publications. If ministers sometimes express doubts about the effective return on such expenditures, one has to appreciate their position and feel some impatience toward those who are not facing their responsibilities. Along with the above-mentioned study by Adair and Davidson, only Caskie[16] and Paquet and Taylor[17] have tried to address this issue. The last study went as far as possible, considering the available data. However, the information is still too sparse to be trusted. In fact, the authors propose a new set of indicators for program assessment.

For too many researchers, hope springs eternal; what Canada needs are more researchers for whom the guiding dictum is "seek and we shall find."

Notes

1. Paul Lacoste, "Letter to the Minister of Education, 20 August 1984," Forum 19, no. 2, 17 September 1984.

2. John E. Adair and Robert Davidson, Research Activity in the Social Sciences: Funding, Productivity and Attitudes of University-Based Social Scientists (Ottawa: Social Sciences and Humanities Research Council, 1983), 21.

3. Ibid., table 5.

4. B.T. Hirsch, J. Brooks Austin, and B. Moore, "Economics Departmental Rankings: Comment," The American Economic Review, September 1984, 822-826.

5. Social Science Federation of Canada, Statistical Profile of the Social Sciences in Canada, (Ottawa: Science Council of Canada, 1984), table 1.

6. Ibid., table 4.

7. Ibid., table 17.

8. Ibid., page 8.

9. Ibid., table 18.

10. R. Lacroix et L. Séguin-Dulude, Les disparités internationales et nationales dans les efforts de R-D: une explication de la situation canadienne et québécoise" (Montreal: University of Montreal, Centre de recherche et développement en économique, 1983), 29.

11. Social Science Federation of Canada, op. cit., table 2.

12. Marc-Adélard Tremblay, "La recherche universitaire nordique dans les sciences humaines au creux de la vague," Recherches amérindiennes au Québec 14, no. 3 (1984), 90-95.

13. Ibid.

14. Gilles Paquet, "The Optimal Amount of Coercion is not Zero," in these proceedings.

15. Tremblay, op. cit.

16. Donald Caskie, "Publications Arising Out of SSHRC Research Grants Awards 1962-1972," report prepared for SSHRC (Ottawa: Social Sciences and Humanities Research Council, 1979).

17. Gilles Paquet and John H. Taylor, "On Markmanship: A Preliminary Look at the Evaluability and Evolution of a Research Grants Program" (Ottawa: Social Sciences and Humanities Research Council, 1983).

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OPENING ADDRESS

Vaira Vikis-Freibergs, Chair, Organizing Committee and Vice-Chairman, Science Council of Canada

Ladies and gentlemen, I am happy to welcome you to this conference on social science research in Canada that has the special theme of Stagnation or Regeneration: Creating Knowledge for a Changing Society. I welcome all who are involved in research, research management, or public administration, and especially those who are or have been filling two or three of these roles at the same time. A very special welcome is also extended to representatives from the press and the media.

The Science Council of Canada has traditionally been composed of members with a background in the physical and natural sciences, engineering, and those sectors of the business community involved with the use of technology. Council's willingness to sponsor a deliberative conference on the status of social science research in Canada and the challenge of creating social science knowledge for its changing society is thus of particular significance against the background of this solid tradition. It represents the acceptance of the social science disciplines on an equal footing with all other branches of science as well as the recognition that these disciplines do face a whole series of problems that are peculiarly their own.

The conference has been organized by a committee, over which I had the honour and the pleasure to preside. The other members were James Gilmour, director of research at the Council, who was very helpful and supportive, Jean-Pascal Souque, science adviser at the Council, and John Trent, professor of political science at the University of Ottawa. The original idea for this conference came from Professor Trent, and he wrote the excellent paper that you have all received as background to the discussions. I would like to take this opportunity to thank my former colleague from the Social Science Federation of Canada, the guiding spirit behind this conference, Professor John Trent.

For the implementation of the original idea, I thank the initiative and good judgement of my Science Council colleague, Jean-Pascal Souque, who has worked for the success of this conference with enthusiasm, energy, and commitment. May I also thank the chairman of the Council, Stuart Smith, and the director of research, James Gilmour, for their financial and moral support, and the members of the Science Council staff who worked to make this conference a success. In particular, I want to mention Beverley Titus, who coordinated the conference, Pierre Bergeron, for public relations and liaison with the press, Bill Guest, for taking care of the administrative details, Claude Perron, who made arrangements for the distribution of publications, Nancy Weese, and Danielle Potvin. To all, my heartfelt thanks.

PANEL 1: REQUIREMENTS FOR CREATING EFFECTIVE SOCIAL KNOWLEDGE AND CONCEPTS

Creating Knowledge for a Changing Society, David Cameron, Assistant Under Secretary of State, Government of Canada

I should like to begin by applauding the initiative of the Science Council in organizing this conference. It bespeaks the Council's humane and comprehensive view of its mandate and of science, the subject the Council was created to address. If I am right, focusing on the social sciences is something of a departure for the Council. I welcome this departure, since I do not think that the social sciences are likely to benefit from a narrow intellectual focus or from a rigid adherence to traditional academic and research categories.

For a number of reasons this seems a propitious time to be addressing the question of social science research in Canada. First, although the natural and medical sciences and engineering are currently in fashion and have been relatively well financed, the Social Sciences and Humanities Research Council, the main (but not the only) funding instrument for social science research in Canada, has not fared as well in the competition for government support. What is more, SSHRC's five-year plan will soon be up for review. This provides an occasion, not simply for the social science community to do some stocktaking and to set priorities, but also for the Canadian government to take a stand on the priority it attaches to support to the social sciences and humanities in relation to other areas of public spending.

Second, the present federal government, although beleaguered by a staggering deficit and acute fiscal pressures, is nevertheless committed to doubling R&D expenditure to 2.5 per cent of the gross national product and to increasing real support for the granting councils. At the same time, the social science community appears to have made significant strides in its understanding of government and of the political (that is to say, resource allocation) process.

Finally, there is a wide range of issues of public importance that would benefit from concentrated social science research. In short, I think the time is right to make a trenchant case for increased support of social science research in Canada.

I find that this panel, and indeed the conference as a whole, is radically utilitarian in focus. Consider, for example, the questions this panel has been asked to address. What generalizations or insights do theory or practice offer concerning the best conditions for developing social research? What should be meant by "effective social knowledge" and "social concepts"? What turns research into "effective social knowledge" and "social concepts"?

Knowledge, social knowledge, effective social knowledge: each term raises a wealth of theoretical issues. Although I shall not address these here, I venture to say that the organizers of the conference, when they used the term "effective social knowledge," did not have, say, George Grant's ruminations on the American empire and Canadian identity in mind. Or Karl Marx's theory of capitalism and class conflict. Yet it would be hard to find a more compelling example of effective social knowledge than Marx's political and economic theory.

My point is this: there are many impulses supporting and shaping social science research. One is the impulse of social utility. What is it useful to know about society? The criterion of useful-

ness is the practicality of the ideas generated, the degree to which social concepts and research products can be applied to the ordinary conduct of social and economic life and to the resolution of social and economic problems.

But there is another impulse supporting the social sciences, and that is social criticism. This impulse encourages those moved by it to try to get an intellectual purchase on their society and its problems, and to seek a basis upon which social reality can be evaluated "from the outside." Any ultimately satisfactory definition of "effective social knowledge" must include a place for the critical spirit. It would be a mistake if the utilitarian quest for knowledge eclipsed the critical function of intellectual activity, particularly in the field of the social sciences. The critical spirit has a seditious quality that needs to be acknowledged and cherished for its ultimate, if not always immediate and instrumental, social benefit as well as for its intrinsic worth. It is this spirit that has brought about the great scientific revolutions.

If this sounds like praise for the sacred mission of Canadian social scientists, that is not what I intend. Indeed, what I have said so far could be the point of departure for a severe criticism of a good deal of current social science. The preoccupations underlying this meeting relate more to the question of the relevance of the social sciences than to their critical function, but it seems to me that there are grounds for concern on this latter count as well as on the former. I do not, however, propose to pursue this question of relevance further in this paper.

Instead, I shall comment briefly on some of the conditions that appear to be necessary to nurture or sustain the critical role of the social sciences, then make some concluding remarks about the interrelationship between this role and the utilitarian function of the social sciences.

Among the many apparent conditions or requirements of vital social criticism are:

- Traditions of intellectual reflection and discourse: social issues, which typically involve issues of public concern, require an intellectual context either to work in or to react against.

- An intellectual forum: social issues need a means of communication for bringing ideas into contact with society and intellectuals into contact with lay persons.

- A certain flexibility in disciplinary definitions: customarily, social criticism involves a problem or project orientation, not a disciplinary focus.

There is possibly a fourth condition: links between social criticism and social crisis. It is fairly clear that efforts to evaluate a society and its artefacts have a greater chance of success in a society confronting acute social, economic, or defence problems.

History provides many examples that demonstrate the importance of these factors. The best recent example in Canada appears to be Quebec in the period prior to the referendum. At that time Quebec had a lively cultural and intellectual life and met most of the requirements for social criticism.

As for the requirements for creating effective social knowledge from a practice-oriented utilitarian perspective, I am sure these will be indicated clearly in this panel and in the course of the conference.

It is evident that the two impulses I have described are quite different. But both of them are based on the fact that the social sciences are quite unlike the natural sciences in the relationships they have to the reality they examine and seek to explain.

This conference may reveal that many of the requirements for strengthening the practical contribution of the social sciences may also foster stronger traditions of social criticism. It may also demonstrate that the two impulses themselves, that of social criticism and that of relevance or utility, may in fact mutually support and reinforce one another.

I hope it is clear that I am not arguing against the utilitarian function of the social sciences, against strategic research, or against using the social sciences to help solve practical problems.

What I am doing is pointing to another crucial dimension of social science that is sometimes in danger of being overlooked or underrated -- especially by government decision makers. I am also arguing that, for the good health of both, there needs to be a balance between the efforts of social scientists to understand and evaluate and the requirement of society that they produce useful results.

The Optimal Amount of Coercion is not Zero, Gilles Paquet, Faculty of Administration, University of Ottawa

> ...I can only recall the answer I was once given by Francis Crick, the DNA Nobel Prize winner, when I asked him what it was that kept one scientist from making a breakthrough which another scientist made. He said that it was rarely an absence of the necessary facts...: There were various obstacles mentioned...but the one I chiefly remember was this: an assumption you are not aware you are making.
>
> Antony Jay[1]

Introduction

The social sciences are the grandchildren of the Age of Reason. They have inherited certain traits from prerationalist modes of thought, some from the Enlightenment code, and others from the physical sciences -- the first-generation progeny of the Age of Reason. This weighty heredity has had important influences on the nature and development of the social sciences as we know them.

Many social historians have argued that, despite this legacy, the social sciences have contributed in important ways to the betterment of the human condition.[2] Others have stressed that the importance of the entrapments built into the social sciences by their heredity may have been seriously underestimated. Indeed, some experts who have scrutinized these pitfalls have refused to believe that any social improvements would automatically follow if additional resources were allocated to social science research as it is now practised. Others have gone so far as to brand the social sciences as pseudo-sciences and to argue that society might have to be defended against science and social science as potential sources of harm.[3]

It is hardly surprising, given these background squabbles, that the public has not developed a clear view of the extent and manner in which social sciences have helped improve social conditions. Also, social scientists need not be surprised that decision makers and policy makers have on the whole discounted the value of social science research as a tool to help them arrive at better decisions.

The Social Sciences as a Social System

One useful way to describe the social sciences is provided by Thomas Kuhn who has defined them not as a type of study but as a kind of social system. The central characters in that system are obviously the researchers. Kuhn suggests that science would normally be defined by these criteria: (1) the researchers form a sort of invisible college based on shared interests and commitments; (2) they are concerned with solving problems; (3) they generally work on problems of detail; (4) they generally agree about what the main problems are; (5) they accept only the judgement of colleagues as pertinent in defining problems and solutions; (6) the supply of problems worth investigating is self-sustaining.[4]

The central feature of this system or grouping of subsystems (for the different social sciences have crystallized into relatively independent subsystems) is that it is autonomous. The social sciences may have beneficial effects on society, but in a sense they regard it as fundamentally irrelevant. The autonomous evolution of the social sciences is defended as the best strategy for maximizing the efficiency of the scientific enterprise. The presumption is that when science functions at peak efficiency, all social and economic

problems will be automatically and optimally taken care of. According to this theory, government should invest heavily in science and social science research while allowing the scientific community to run its enterprise autonomously because, supposedly, that is the most efficient way to generate the knowledge that will make society better off. Some readers might suggest that this is a caricature of the philosophy of the social science enterprise in Canada today, but the credo is in fact subscribed to with pride by a large segment of the social science community.[5]

There are many alternative views about the social system of the social sciences. One is held by the economist Harry Johnson who has criticized this corporatist view of the social system of science. For him, science is a consumer good no different in kind from other modes of cultural expression, a luxury good that rich and affluent nations can invest in. There is neither more nor less reason for spending public money on science and social science, says Johnson, than for spending it on artistic activities.[6]

This latter view has gained some currency in Canadian government circles, especially with regard to the social sciences. It might even have been the basis of the decision to make dramatic cuts in funding for social science research.

But recently both these views of the social system of the social sciences have come to be regarded as somewhat extreme. Although these views remain in good currency in academic and government circles, the great problems facing societies over the last decade have forced reasonable persons to shy away from such polar positions, at least in open discussions. There has been a recognition that social science research cannot usefully be characterized either as autonomous enterprise or as glorious entertainment: it is a social system providing society and government with much-valued knowledge to help them improve the productivity and welfare of the community. This third view of science and the social sciences has become widely accepted of late within a portion of the community of social-science watchers. However, these people have not yet succeeded in persuading either colleagues or public officials of the validity of their diagnosis.

According to the third view, social science research is a technical aid (helping society to achieve certain goals) and a social overhead investment (helping to improve the productivity of society). Science and social science are perceived as being in the public domain and therefore qualify for public investment. But if public funds are to be channelled toward the social sciences, it is legitimate for the public to require that good use be made of those public funds and to ensure such good use through evaluation by reference to certain standards external to science and social science per se.[7]

Once this point is granted, it remains to determine the conditions under which the social sciences will be socially effective, that is, the conditions under which they will do the right thing as defined by the broader sociopolitical system.[8] The conditions clearly pertain to the structure and functioning of the social system of social sciences. But before suggesting any blueprint for the best social system of the social sciences, I will examine how social science research produces effective social knowledge.

Certain evaluation studies performed in the United States have developed elements of a framework that has been found useful in recent empirical work by O. Helmer and H. Helmer.[9]

This framework divides the production of social knowledge into two broad stages: the production of new knowledge and the transformation of this new knowledge into usable knowledge. Sensitivity analyses performed by Helmer and Helmer seem to show that the use of different formulae to gauge either type of output does not change the overall results of their analyses of the general effectiveness of the social sciences.

One of the weaknesses of the Helmer and Helmer study is that, because it was designed for a foundation, it may not have gone far enough in calibrating the social impact of the funded research. It was sufficient for the two researchers to establish that the new knowledge was usable. However, their argument could be extended to take into account the private and social benefits from this usable knowledge. The two-stage model for the production of effective social science knowledge suggests that the effectiveness of the social system of the social sciences can be evaluated as the product of three components, (N x U x B) where

N = probability of new knowledge
U = probability that the new knowledge is usable
B = probability that the usable knowledge will generate positive private and social benefits

In the theory of social science as an autonomous enterprise, the performance of the system is gauged entirely with reference to the first component, N, or even with reference to a subset of N regarded by the invisible college as relevant or exciting. In the second version of social science as a consumer good, there might be a myopic fixation on some limited aspects of B. In the third version of the social sciences as social overhead investment, the performance of the science is gauged by the product of N times U times B.

In each case, some rough social indicators of the different components have been developed.[10]

There are now indications that a compromise might be emerging between the different parties. Dr Stuart Smith, chairman of the Science Council of Canada, has suggested that such a compromise must be worked out collectively by researchers, funding agencies, governments, and so on.[11] What may be needed is a revolution in the minds of practising social scientists as well as the construction of better institutional links between social science researchers and the community they are meant to serve.

Pitfalls that Threaten the Social Sciences

Deciphering the ways of the social sciences is not unlike trying to read a palimpsest -- a parchment that has been written upon a number of times, the previous texts having been imperfectly erased and remaining, therefore, partly visible. The current practice of social sciences today follows many of the codes that characterized the profession before, during, and after the Enlightenment. There are many such codes -- both at the epistemological and at the institutional level -- that have marred the practice of social science and made it less likely to contribute to the creation of effective social knowledge. The few identified below are illustrative.

A. Epistemological Pitfalls

Contemporary social scientists have not freed themselves as much as they think from pre-Enlightenment thinking or, for that matter, from the mode of operation of the physical sciences. It has been said that the social sciences subscribe to an epistemology that may not be suited to it.[12]

1. Assumption of a Single Rationality[13]

The world view that prevailed before the Enlightenment recognized one god,

creator of the cosmos. This god, in Leibnitz's characterization, was a mathematician. Natural science saw its task as the rational reconstruction of this vast mathematical order so as to understand it. Physical scientists continued to define their task in a similar way even after the god creator was expelled from the universe, as if the unity of the world view implied by the postulate of a god creator had to be maintained at all costs.

The early strategy adopted in the physical sciences, which built on the assumption of this unified world order, emphasized three tenets that have remained central to much of the epistemology of the physical sciences almost to this day: (a) quantification, (b) cause-effect relationships, and (c) the use of mechanical models. The second and third tenets of this epistemology may have already been abandoned by the physical sciences in the light of work in quantum mechanics (whereby experiments repeated several times under identical conditions yield different results) and in the light of the work of James Clerk Maxwell, who showed that physical reality is not mechanically explicable. However, this news has not yet reached the social sciences.

As a result much social science still remains in the grip of the machine model of reality, which has shaped its ruling paradigms. Social science has therefore been accused of "running away from basic data" because its vision of reality regards such data as inadmissible. Values, purpose, inner experience, and meaningful units of behaviour are not accommodated by the machine model of reality. No wrong prediction, no inability to account for much of human life (creativity, love, courage, dignity, and so on) seem to discourage social scientists from sticking to this narrow view of how to organize reality, a view inherited from the early stages of the physical sciences.[14]

2. The Model of Technical Rationality

This model defines professional activity in the sciences as "instrumental problem solving made rigorous by the application of scientific theory and techniques."[15] This model of technical rationality defines the one-way channel through which knowledge flows: from the underlying discipline or basic science, to applied science or engineering, to the actual performance of services to the client -- in the language of Edgar Schein.[16]

The origins of technical rationality can also be traced again to the philosophers of the Enlightenment. They wanted to "harness science to create technology for the achievement of human ends."[17] When modern universities were created in the late 19th century, this view of the world became institutionalized and there ensued a division of labour between the university and professional schools. In the ironic words of Thorstein Veblen, in The Higher Learning in America, the university of 1918 was "fit for a life of science and scholarship," whereas the lower schools were meant to instil "such knowledge and habits as will make their pupils fit citizens of the world in whatever position in the fabric of workaday life they may fall."[18] As Donald Schon summarizes it, "the professions are to give their practical problems to the university, and the university, the unique source of research, is to give back the professions the new scientific knowledge which it will be their business to apply and test."[19]

Schon shows that the model of technical rationality failed in important ways those social sciences that, without realizing the perversions to which it had led, had adopted uncritically the late 19th century model of medical and engineering schools. In the words of Herbert Simon, "engineering schools have become schools of physics and

mathematics; medical schools have become schools of biological sciences...." The failure to develop an epistemology of practice to replace or complement the model of technical rationality has gravely endangered the capacity of the social sciences to become effective instruments of social betterment.[20]

B. Institutional Pitfalls

In a way, a social system is composed of a structure, a theory, and a technology.[21] It is clear that the dominant theories mentioned above shaped the structure and institutions of the social system of the social sciences and the technologies it has favoured. This in turn has led to the development of related institutional pitfalls.

1. The Caste System

The massive borrowing from the physical sciences model has had unintended consequences for the social sciences. The social sciences depend to a much greater extent on problem setting than do the physical sciences.[22] In such circumstances, the nature of the technical base of knowledge to be developed is not entirely clear ab ovo, and the transfer of knowledge from the basic disciplines to practitioners does not work.

This cleavage led not only to the isolation of universities from the workplace but also to peaceful (though at times hostile) relations between social scientists at universities and their extramural colleagues who try to make use of social science research. This arm's-length relationship was based on the limited use practitioners could make of academic output and the general irrelevance for the academic community of any work emanating from reflection-in-action.

Over time a caste system has developed: the university social scientists emphasize "the basic theoretical structure of the disciplines" in their research, whereas "the social scientist who works on applied problems is often viewed as a second-class citizen – regarded by his academic peers as inferior to colleagues who do basic research."[23]

Some interlopers, located for the most part in professional schools within university campuses, have entered this competitive world to provide a useful arbitration between those two worlds. However, these amateurs and consultants have quickly been branded as substandard by their peers because their work fails to conform to the standards of the invisible college.[24]

The model of technical rationality might have been able to respond in part to the demands of practitioners and professionals; but the caste system and the consequent lack of communication between those charged with developing the knowledge base and those charged with making use of it in government, business, labour unions, and society in general have rendered creative dialogue either impossible or entirely ineffective.

2. The Project Syndrome

There may be hundreds of organizations purporting to do social science research in Canada; but hundreds of molecules do not necessarily add up to a healthy living research organism.

Research effort in the social sciences in Canada is very much personalized, fragmented, and fragile (if not ephemeral), and most of the time it operates below optimal levels. One reason for this is the limited industrial base under Canadian control and the resulting shortage of private endowment support for social science research. Other reasons include the relatively recent development of the social sciences in Canada and the very nature

of the enterprise, which does not necessarily lead -- as often happens in the physical sciences because of researchers' need for equipment -- to the formation of large teams likely to last for more than one academic year.

A fourth reason is the project-orientation of social science research funding. It is impossible for any serious natural scientist to operate a laboratory without the continuing support of the research infrastructure. Funding procedures have been developed that recognize these needs and emphasize the importance of the scientist rather than the project as the meaningful unit in the research cycle.[25] In the social sciences, research is too often funded on the basis of projects. Each project is considered out of context by ever-changing groups of referees who do not appreciate the broader research program of which it is a part. These procedures provide no assurance from year to year that funding will be continued. The need for infrastructure support has not been acknowledged and long-term commitments are therefore difficult to make. A high personnel turnover rate characterizes most research teams that have survived.

The project syndrome of the Canadian social science research enterprise has prevented the development of domain-based research (that is, domain-based inquiry that links a group of social sciences to a major sector of social concern) or of its concrete counterpart, collaborative action research programs (that is, a program carried out by a research group in collaboration with a client system).[26]

As Sir Geoffrey Vickers puts it so aptly in Freedom in a Rocking Boat, "a trap is a trap only for creatures which cannot solve the problems that it sets."[27] It is my view that the obstacles identified above pose soluble problems. The entrapments can be avoided, but they most certainly cannot be avoided without some critical thinking about existing practices and some sense of innovative social architecture.

Modest Proposals

The obstacles that prevent the social sciences from playing as strong a role as they should in the creation of effective social knowledge and concepts have one thing in common -- people make them. Consequently, people can also unmake them. To chastise the tradition of utopianism and simple-mindedness that has marred the practice of social science or governments' irrational fear of the social sciences as essentially critical and subversive is of little help. The real obstacles to better performance by the social sciences are at the level of l'outillage mental and the social technology. Any set of proposals must therefore transform them.

A. Toward a New Epistemology of Practice

I have identified two major epistemological impediments to creative social science. It is my view that until social scientists' outillage mental is freed from those constraints, their contribution to the creation of effective social knowledge and betterment is bound to be limited. Our proposals on this front are not meant to be instant cures or panaceas. They are meant to be a mental equivalent of Drano.

1. A Declaration of Independence

Social scientists have been trapped by a very narrow view of rationality and method. One of the first steps that might be taken to free social scientists from such a heritage is a declaration of independence from the ruling epistemology. The argument supporting such a declaration has already been developed by Paul Feyerabend in two important books.[28]

Feyerabend shows that "anarchism, while perhaps not the most attractive political philosophy, is certainly excellent medicine for epistemology."[29] He argues that there are limits and diminishing returns to all methodologies and that it would be a mistake to adhere to any one of them to the exclusion of all others.

Wise practitioners have already sounded warnings. The practice of "normal science" is so oppressive that Nobel-prizewinning economist Wassily Leontief could state without risking ostracism by his colleagues that "the methods used to maintain intellectual discipline in economics departments can occasionally remind one of those employed by the Marines to maintain discipline on Parris Island."[30]

During the last decade or so, social scientists have come to realize that the methodology and epistemology of classical physics are inappropriate. They have recognized that the positivist attitude adopted by the social sciences was not necessarily the most useful research strategy. Applying the so-called scientific method to human problems may lead to scientific distortion and reduce the notion of knowledge to the "kind of knowledge which the physical sciences acquire."[31] The vehement reaction of Feyerabend is not meant, as some unenlightened critics have suggested, to replace a solid tradition by an ideology of "anything goes." It is rather that the ruling ideology of social science has become a regulating ideology within the invisible college: intellectual intolerance and ritual excommunication have become familiar in social science circles.

This sort of declaration of independence may itself appear to be a kind of ritual without much significance, but the removal of the notion that there is only one good way to do social science is a necessary if not a sufficient condition for the social sciences to become more effective. As it stands, institutions remain committed to a particular epistemology that fosters selective inattention to many important issues. The result, as noted earlier, is that social science is allowed "to run away from its basic data."[32]

2. In Praise of Reflection-in-Action

It is not enough for social sciences to distance themselves from the ruling epistemology; it is also imperative that they construct an alternative approach that provides both flexibility and pragmatism while a new relationship between reason and practice is being built.

For a long time Chester Barnard's well-known distinction between thinking processes and nonlogical processes (those which are not capable of being expressed in words or as reasoning, and which are only made known by a judgement, decision or action[33]) has been accepted by social scientists. Barnard argues that many activities can be rational even though they cannot be expressed in the form of an optimization process -- that is, as the simple maximization of a function subject to constraints. Donald Schon has attempted to develop a clear statement of this epistemology of practice by contrasting it with the technical rationality model and by observing a number of case studies of different types of reflection-in-action in different professional contexts.[34]

What this work has revealed are the limitations of the model of technical rationality and the desirability of "an epistemology of practice which places technical problem solving within a broader context of reflective inquiry, shows how reflection-in-action may be rigorous in its own right, and links the art of practice in uncertainty and

uniqueness to the scientist's art of research."[35]

The legitimacy of this alternative epistemology was confirmed by Feyerabend in a different context when he examined the relationship between reason and practice. He was led to question the view held by the technical rationality model that "reason guides practice" and the opposite naturalistic view that "reason receives both its content and its authority from practice." Between deduction and induction he evolved a pragmatic philosophy of transduction: "Reason without the guidance of practice will lead us astray, while a practice is vastly improved by the addition of reason."[36]

All this may appear trite, but universities and funding agencies have not yet come to grips with these alternative epistemologies. Technical rationality goes unchallenged and professional reflection-in-action is regarded neither as legitimate nor as research. An analysis of the grant application forms of well-known agencies is rather enlightening in this regard. The ideas that problem-setting is crucial and that "when someone reflects-in-action, he becomes a researcher in the practice context"[37] have not yet been widely accepted. As a matter of consequence, the invisible college and its representatives on granting councils and committees more or less consciously ensure that work that does not fall within the ambit of "normal science" does not get support. This regulating mechanism enforces the survival and the prosperity of the ruling epistemology and ensures the demise of its rivals.

3. Displacement of Concepts as a Method

It is not sufficient to open up social science research to alternative realities and epistemologies or to turn the technical rationality model on its head; it is also crucial to understand better how new interactions between reason and practice will generate innovative, creative, and effective social knowledge. The key to this understanding is the theory of the displacement of concepts, that is, the manner in which "an old concept is shifted to a new situation in such a way as to change and to extend itself."[38]

Such displacements, which are often generated by analogies and metaphors, are bound to mushroom in a world of greater competition among paradigms and epistemologies and in an environment in which reflection-in-action triggers greater contact between fields of knowledge that had previously ignored one another. Instead of counting on disciplinary tools to make ever deeper forays into ever narrower subfields, it may be that researchers will have to begin exploring important social concerns using new concepts that are unlikely to emerge except at the interface between traditional disciplines.

Such displacements of concepts at the interface of disciplines or at the frontier of reason and practice are likely to promote what Roger Caillois has called "the diagonal sciences" -- "the study of phenomena that cut across the traditional boundaries of the various sciences."[39] The very existence of these "sciences diagonales" and the recognition that the dialogue between social sciences might generate more light, new concepts, and more effective social knowledge in different domains may well lead to a deregulation of social science research and to a more collaborative and creative social science enterprise.

Although it may not be possible to assume that the new outillage mental of social scientists that is likely to emerge from such experiments will multiply the capacity of the social sciences to create effective social knowledge, the gamble

on this new outillage mental is certainly the most reasonable and most promising one to take at this time.

B. Toward an Improved Social Technology of Social Science

Even if the outillage mental is refurbished, social science research is unlikely to be more effective unless existing institutional impediments are also removed. Otherwise, social science research will not be able to channel its newly deregulated activity into areas of research of value to its clients. More effective conduits between the academic community and the users of social science research must be found.

1. Social Technologists and Designers

In the physical and life sciences there has evolved (in the real world if not on organization charts) a division of labour not only between scientists and practitioners, or between scientists and designers, but also between practitioners of the natural sciences and practitioners of the sciences of the artificial. This division of labour has never been easy and in the recent past, the combined forces of "normal science" and of the "caste system" have had some unfortunate effects: "The movement toward natural science and away from the sciences of the artificial has proceeded further and faster in engineering...and medicine."[40] The same has been said about the drift toward science and away from design in schools of law, journalism, business, and so on, but in these cases the difficulty is compounded by the fact that designers and those we might call social technologists in the social sciences have few traditions and have had no real opportunity to develop.

Indeed, a vacuum exists in the knowledge base: there is no strong body of practitioners in the social sciences that could be to the social sciences what engineers are to the natural sciences. The dialogue between reason and practice is dramatically diminished by the absence of such brokers, and the very possibility of collaborative work between designers and scientists is reduced, obviously, by the absence of such personnel at the interface.

Herbert Simon anticipated the emergence of a "science of design" and a "science of the artificial" at the core of good business schools a quarter of a century ago, which would make them different from departments of economics and psychology.[41] But it is not entirely clear that Simon's foresight was accurate. The social science equivalent of designers who, like architects and medical doctors are charged with the task of acting out social science, of designing and executing on-the-spot experiments, still do not exist. For instance, managers remain schizophrenic: they are, on the one hand, experts in the science of management, and on the other, technicians applying those principles to everyday problems.[42]

2. Professionalism

It may not be sufficient to educate applied social scientists or social technologists and to train them to value and develop a capacity for reflection-in-action. The specialists who are already well trained require an additional quality to ensure that they deal with clients in an appropriate way. This additional component is professionalism.

Until recently social scientists have not perceived themselves as professionals; they have also wished to avoid the constraint of working for a client. In this way social scientists differ from the architect, the attorney, the civil engineer, and the physician, all of whom have come to accept the discipline and limitations imposed on their practice by interaction with a client. Some might say these professionals have succeeded in going beyond their limits as a result

of the pressure exerted by clients who make known their needs and goals.

For social scientists in general, the client has rarely been an individual. Social scientists are employed by agencies, mostly agencies of the state. This is a phenomenon that also affects other professions, but it is central to the practice of social science. For social science, society is the client.[43] Society may be more restive than medical patients, but even so social scientists have so little contact with "real" clients that they find it difficult to develop and maintain any sort of commitment and loyalty to the anonymous public that is supposed to be their client.

It has been argued that more research in the social sciences should be funded by contracts instead of grants. To do so might reduce the role of serendipity in social science research and reassert the central role of accountability in its stead. At the same time the client would become less anonymous and the professional bond between researchers and society might be strengthened.[44]

Universities have not been particularly helpful in developing and nurturing professional concern for the client system. Academics are rarely rewarded (they are even chastened in some institutions) for the work they do as professionals and consultants. The university-defined system of incentives and rewards often results in more alienation than reinforcement for the would-be professional.

Professional schools in the social sciences are still regarded in most universities as second-class citizens; yet they are the producers of much useful social knowledge. The idea that research is an activity of practitioners remains foreign to most academic administrators: reflection-in-action is either regarded as being of less value than academic research or even as not being research at all. For this reason, it has been said that professionalism is not promoted at the university -- it is feared.

3. A Guidance System

The lack of social engineers and technologists and of a professional ethos has resulted in the lack of an organic control system that would enable the social system of the social sciences to develop toward more effective knowledge generation. This fact has led to a debate about the appropriate role of government in guiding the social science enterprise.

One popular position has been that government has no business in the affairs of the mind. Another position, one that is probably more reasonable, argues exactly the opposite: that the affairs of the mind might very well be one of the most important responsibilities of government. Joseph Tussman has put the point rather sharply:

> The community being what it is had a great stake in the condition of its knowledge-creating and transmitting institutions, in its institutions for informing, discussing, deliberating, deciding. The question then is whether government, the instrument through which the community acts to promote so many of its aims, has (or may be given) authority to act in this area of concern, or whether, for special reasons, the community may not act through government in matters which concern the mind.[45]

De facto, there is always a politics of research and cognition in the real world. The research enterprise is neither entirely self-governed nor entirely ungoverned. There must be therefore a middle-of-the road position between accepting that government

should be absent entirely and the position of government as Homo manipulator. This is the position that Tussman describes as "leadership that enlightens, teaches and forces us to attend to the necessary agenda."[46]

Canadian social scientists have been reluctant to discuss openly to what extent governments should accept responsibility for and take on the guidance of the social system of social science research. Yet it is clear (except to those for whom serendipity ensures automatically and tautologically an ideal world) that the laissez-faire system has not led the social system of social science research to attend to the necessary agenda. Therefore, some sort of guidance is needed to steer the system toward those problems society regards as important.

The guild-like disciplines should not dictate what the "normal" problems are and through what "normal epistemology and methodology" they should be approached. Instead there could be a system of incentives and rewards that would steer social scientists in the direction of certain domains or issues of social concern while allowing them to search for socially useful and effective knowledge through the use of any epistemology and methodology they prefer. This is what academic freedom is all about.

It may be that such strategic choices by government will not necessarily lead the social science research system to the optimum optimorum. But we already know that the invisible hand of laissez-faire does not perform that feat either. The optimal amount of coercion that should be applied to the social system of social science research is not zero. What is needed is as little coercion as possible but as much as is necessary.

In this sense, the recent emergence of strategic grants in research funding might turn out to be a very creative and socially effective innovation. However, it might not be sufficient to rely on temporary financial stimulants to steer social scientists in certain directions, toward certain types of domain-based research or certain forms of collaboration. There is also a need to ensure that such steering will create a more nearly adequate social science research system in Canada.

There are different models for such systems, but this is not the occasion to review them. In any case, it is clear that whatever system might be effective elsewhere would need to be modified to fit the Canadian context. Social architects must design a social science research system that will be more effective in generating social knowledge and concepts in Canada; for this task, some knowledge of the theory and practice of social architecture is necessary, and such knowledge is available.[47]

However, while Canada waits for a social architect to come forward with a design, it might be useful to consider a possible design suggested 20 years ago by the Council of the Tavistock Institute of Human Relations in Great Britain.[48] This design proposes three main types of research organization:

Type A: Centres of professional social science service activity, with associated research and development, established to undertake work on immediate practical problems.

Type B: Centres of basic research associated with major teaching facilities. Centres of Type B are the opposite of, and complementary to, those of Type A.

Type C: Centres of applied research associated with advanced

Figure 1. Overlap of Work in the Three Types of Research Organization

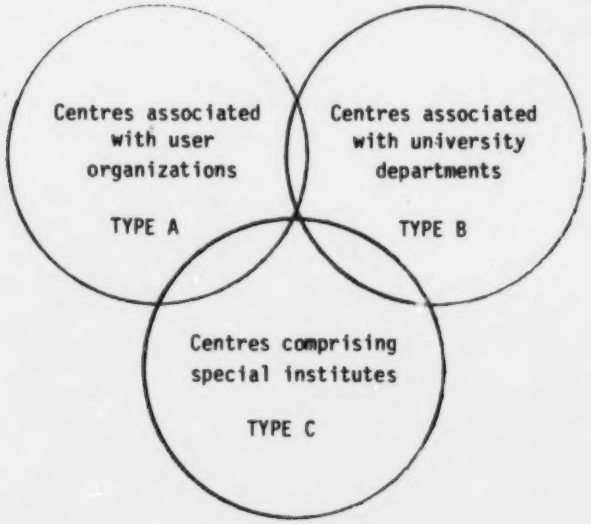

Table 1. Characteristics of Main Types of Research Organizations

	Type of setting		
	User Organizations	University departments	Special institutes
Source of problem	Specific client needs	Needs of theory and method	General "field" needs
Level of problem	Concrete	Abstract	Generic
Activity mix	Research/ service	Research/ teaching	Research/ application
Disciplinary mix	Multiple	Single	Interrelated
Overall pattern	Type A	Type B	Type C

Table 2. Varieties of Research Unit in Relation to Main Types

Main type	Varieties	Examples in the social sciences
Type A:		
Centres associated with user organizations	1. Internal agencies	Home Office Research Unit
	2. Directly controlled establishments	Road Research Station, Psychological and Social Section
Type B:		
Centres associated with university departments	1. Predoctoral graduate programs	Institute of Social Anthropology (Oxford)
	2. Postdoctoral programs (basic)	Nuffield College (Oxford)
	3. Postdoctoral programs (contract)	Studies for government departments by the London School of Economics
Type C:		
Centres comprising special institutes	1. University-based organizations	Institute of Applied Economics (Cambridge)
	2. Independent organizations	National Institute of Industrial Psychology
	3. National organizations (shared costly facility)	*
	4. National organizations (shared routine facility)	Government Social Survey

* Institutes of Type C3, such as the National Institute for Nuclear Physics, are not yet required by the social sciences.

Source: Adapted from Social Science and a National Policy for Science, Tavistock Pamphlet No. 7 (London: Tavistock Institute of Human Relations, August 1964), 8-9.

research training. Centres of Type C may be regarded as the resultant of Types A and B. They supply the necessary link between them and are the intermediate bodies between user organizations and orthodox university departments.[49]

Some features of these three types of organizations are sketched very briefly in Figure 1 and Tables 1 and 2.

Conclusion

I mentioned earlier that social science as a social system has suffered greatly from a weighty heredity and that both epistemological and institutional impediments have prevented the social sciences from performing as well as they might have done. It has also been suggested that these impediments could be eliminated with a bit of ingenuity.

Some of the proposals made in this paper can easily be implemented; others are unlikely to be implemented immediately because mentalities lag behind realities. It is unlikely, however, that any major change in the social system of the social sciences will materialize without a substantial amount of planning. Governments will have to find a way to provide the sort of leadership referred to in the previous section. The forces that will cause the social sciences to attend to the necessary agenda may be embodied in any number of institutional forms, not necessarily the ones already illustrated. What is needed now, however, is a forum in which these issues can be sorted out. At this time such a forum does not exist in Canada. A revival of the Senate committee on science policy might be a good way to create such a forum.

In the meantime, my only hope is that some of my suggestions will be found helpful and that Maurice Blanchot's curse, "To say something is to have it disbelieved, to point to something is to ensure that only the pointing finger is seen," will not apply to this paper.

Acknowledgements

I would like to acknowledge the assistance of Henriette Nicoll in the preparation of this paper.

Notes

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2. One of scores of books on the question is Scott Gordon's Social Science and Modern Man (Toronto: University of Toronto Press, 1970).

3. L. LeShan and H. Margenau, Einstein's Space and Van Gogh's Sky: Physical Reality and Beyond (New York: Macmillan, 1982), chapter 12; P. Feyerabend, "How to Defend Society Against Science," Radical Philosophy 2 (Summer 1975): 4-8.

4. T.S. Kuhn, The Structure of Scientific Revolutions (Chicago: University of Chicago Press, 1961); B. Ward, What's Wrong with Economics? (New York: Basic Books, 1972), chapter 1.

5. The extraordinary campaign of social science associations during the last five years in Canada against the very idea of strategic grants, and later against strategic grants as a main policy thrust, is rather revealing on this score. A case study of these events has not yet been written, but it is clear that these debates have revealed the value system held by the majority of social scientists.

6. H.G. Johnson, "Federal Support of Basic Research" in Basic Research and National Goals (Washington, D.C.: The National Academy of Sciences, 1965), 127-142.

7. These different theories of science and social science are developed by H. Brooks in The Government of Science (Cambridge, Massachusetts: MIT Press, 1968), chapter 3. For a discussion of the issues and of the validity of these different views, see J. Tussman, Government and the Mind (New York: Oxford University Press, 1977); see also G. Paquet and J.H. Taylor, On Marksmanship (Ottawa: Social Sciences and Humanities Research Council of Canada, 1983), mimeograph.

8. For a simple definition of effectiveness in this context, see W. Baker, "The Triple-E Movement and Productivity in Canada's Federal Public Services," Optimum 11, no. 3 (1980): 5-20.

9. O. Helmer and H. Helmer, Future Opportunities for Foundation Support (Middletown, Connecticut: The Institute for the Future, 1970); for a summary, see Paquet and Taylor, op. cit., appendix 1, I.23 ff.

10. These indicators are far from reliable at this time, but they point the way to the construction of more reliable ones. For a general discussion of these questions, see Paquet and Taylor, op. cit. For another exercise to develop national weights linking science activities to national goals, see N.H. Lithwick, Canada's Science Policy and the Economy (Toronto: Methuen, 1969), appendix C.

11. Dr Stuart Smith, speech delivered to the Social Science Federation of Canada, Ottawa, 12 May 1984.

12. The point is made most effectively in a recent book by H.A. Simon, The Sciences of the Artificial (Cambridge, Massachusetts: MIT Press, 1981), second edition.

13. The general drift of the argument expounded in this section has been developed by LeShan and Margenau, op. cit., chapter 12.

14. LeShan has argued for a strategy based on the practical use of alternate realities in the social sciences, which would appear to be no less acceptable than the strategy that led to the practical use of alternative spaces in geometry. L. LeShan, Alternate Realities (New York: M. Evans, 1975).

15. D.A. Schon, The Reflective Practitioner: How Professionals Think in Action (New York: Basic Books, 1983), 21. My discussion draws heavily on the ideas elaborated in chapter 2.

16. E. Schein, Professional Education (New York: McGraw Hill, 1973), 39. Quoted by Schon, The Reflective Practitioner, 24.

17. Schon, The Reflective Practitioner, 31.

18. T. Veblen, The Higher Learning in America (New York: Hill and Wang, 1972), 15. This is a reprint of the 1918 edition. Quoted by Schon, The Reflective Practitioner, 35-6.

19. Schon, The Reflective Practitioner, 36.

20. For a critical examination of the impact of this trend on professional training in general and on the production of effective social knowledge, see the work of Nobel prize winner H.A. Simon, op. cit., 29. Simon explains the limitations of the model of technical rationality. His efforts might be construed as efforts to salvage the model by creating a science of design. However, the dichotomy he

suggests between the "task of the science disciplines to teach about natural things" and the task of professions "to teach about artificial things" is interesting in that it underscores that a single rationality and a singlemindedness about "reality" might not be the optimal strategy for scientists to adopt.

21. D.A. Schon, Beyond the Stable State (New York: W.W. Norton, 1971), chapter 2.

22. "Problem setting" is defined by D.A. Schon as "a process in which, interactively, we name the things to which we will attend and frame the context in which we will attend to them." Schon, The Reflective Practitioner, 40.

23. National Science Foundation, Knowledge Into Action: Improving the Nation's Use of the Social Sciences, Report of the Special Commission on the Social Sciences of the National Science Board (Washington, D.C., 1969), 15.

24. Universities often state in official documents that a certain half dozen academic journals will be regarded as the "meaningful" outlets for the academic production of social scientists in a particular discipline. In some academic circles, a monograph published by the Economic Council of Canada, the C.D. Howe Research Institute, or the Institute for Research on Public Policy is not regarded as a "meaningful" publication even though it has been refereed by peers.

25. Paquet and Taylor, op. cit.

26. These strategies are defined explicitly by F.E. Emery and E.L. Trist, Towards a Social Ecology (New York: Plenum, 1973), chapters 8 and 9.

27. G. Vickers, Freedom in a Rocking Boat (London: The Penguin Press, 1970), 15.

28. P. Feyerabend, Against Method: Outline of an Anarchistic Theory of Knowledge (New York: Schocken, 1978); P. Feyerabend, Science in a Free Society (New York: Schocken, 1979).

29. Feyerabend goes to much trouble to ensure that his use of the word anarchism is not marred by the overtones it has acquired through its political usage. Feyerabend also uses the adjective "dadaist" to identify his point of view on methodologies. Dada, in the words of Hans Rechter, "not only had no programme, it was against all programmes." Feyerabend, Against Method, 17, 32-33.

30. W. Leontief, Science 217 (July 1982): 105.

31. Vickers, op. cit., chapter 8.

32. Schon, The Reflective Practitioner, 7; for a general argument suggesting that the disciplines as constituted may be the instruments of single-mindedness in the social sciences, see G. Paquet, "Un appel à l'indiscipline théorique" in M. Lebel and C. Marchand, editors, Présentations No. 32-33 (Ottawa: Société Royale du Canada, 1978): 109-118.

33. Schon, The Reflective Practitioner, 51-2. The author is referring to C. Barnard, The Functions of the Executive (Cambridge, Massachusetts: Harvard University Press, 1938). Barnard uses numerous examples to illustrate his ideas

about nonlogical processes. Of a bright highschool boy solving a quadratic equation, he says: "He could not write the textbooks which are registered in his mind."

34. Schon, The Reflective Practitioner, Part II.

35. Ibid., 69.

36. Feyerabend, Science as a Free Society, 24 ff.

37. Schon, The Reflective Practitioner, 68, 308. This is not the place to explain the "epistemology of practice" developed by Schon or to note the successes it has had outside the conventional channels of research and "normal science." However, at the epistemological level, the theory is vital to any attempt to recast the relationship between research and practice. In Schon's perspective, "research is an activity of practitioners." This is not to deny that "reflective research" might be undertaken outside the immediate context of practice and that it might be of much help to the practitioner. Such work has been described in detail by Schon in Part III of his book. However, it is only when reflection-in-action is recognized as a valid alternative epistemology that new modes of collaboration and partnership between "researchers" and "practitioners" will become possible.

38. D.A. Schon, Displacement of Concepts (London: Tavistock Publications, 1963), 208.

39. R. Caillois, Méduse et Cie (Paris: Gallimard, 1960), 9-18. Much of the recent work on artificial intelligence has revealed the centrality of processes that have been ridiculed by the technical rationality model. For instance, one of the central problems of current research programs in artificial intelligence deals with "learning by analogy." P.H. Winston and K.A. Prendergast, editors, The AI Business: The Commercial Uses of Artificial Intelligence (Cambridge, Massachusetts: MIT Press, 1984).

40. Simon, op. cit., 130.

41. Ibid., 132.

42. Schon, The Reflective Practitioner, chapter 8.

43. Simon, op. cit., 177.

44. For a recent argument in favour of "the serendipity of scientific research" as the central feature to be saved -- an argument as emotional as it is unpersuasive -- see J. Miller, "Scientists Need Serendipity," Policy Options (November 1983): 21-23.

45. J. Tussman, Government and the Mind (New York: Oxford University Press, 1977), 11.

46. Ibid., 19; Paquet and Taylor, op. cit., chapter 1.

47. H.V. Perlmutter, Toward a Theory and Practice of Social Architecture: The Building of Indispensable Institutions (London: Tavistock Institute, 1965).

48. Council of the Tavistock Institute of Human Relations, Social Science and a National Policy for Science, Tavistock Pamphlet No. 7 (London, August 1964).

49. Ibid., 7-8. For an examination of the need for new forms of organizations and types of relationships

between the different partners in order for cooperation to pay off, see Partnership for Growth: Corporate-University Cooperation in Canada (Montreal: The Corporate Higher Education Forum, May 1984). This study identifies many impediments to fruitful cooperation between corporations and universities in Canada. One of these is seen to be the divergent "corporate" cultures of the potential partners. One might interpret the findings of that study -- even though it is not directed at social sciences per se -- as a call for a modification of the "university research culture," a proposal that is not incompatible with the one I suggest in this paper. According to the report, economic necessities may bring about a change in traditional relationships and values. However, one should not assume that this call for partnership is seen by academics as necessarily desirable. For a recent argument from academe that the community (and in particular the business community) has already too much say in universities, see D.J. Bercuson, R. Bothwell, and J.L. Granatstein, The Great Brain Robbery (Toronto: McClelland and Stewart, 1984).

Effective Social Knowledge, Kenneth Prewitt, President, Social Science Research Council, New York

Examples from the natural sciences illustrate what is meant by effective knowledge: chemically based agriculture, nuclear based warfare, biologically based health care, and electronically based communication. These are but a few of the social transformations based on the natural sciences. Another prospect on the horizon, genetic engineering, will soon be added to the list. The choice of examples leads to a definition of "effective" as "causing or effecting changes in social conditions." By this definition, the sciences of nature are effective on a vast scale.

Applying the same criteria of effectiveness to the social sciences produces similar, if less dramatic, examples. With the social sciences, however, the products of discovery are more likely to be analytic constructs and tools of observation than commercial products. Analytic constructs include the concepts of human capital, span of control, reference group, and class conflict. The tools of observation include psychometrics, sample surveys, and ethnography. Evidence generated by these observational tools can be collected and manipulated into yet other constructs that help organize social life, such as IQ, GNP, or cultural lag. Indeed, I believe that persons not familiar with the social sciences could better understand (and appreciate) these sciences if there was less talk of disciplines such as sociology, political science, psychology, or anthropology and more talk of the things actually studied (command and control systems, learning disabilities, or cultural discontinuities) and the things produced (econometric models, social indicators, or institutional innovations).

Although the social sciences can, in unusual circumstances, affect society in the same way that the natural sciences do -- Keynesian economics, for instance -- normally society exerts more influence on the social sciences than vice versa. The things social scientists take as their subject matter -- business cycles, war-making, memory and cognition, civil strife, elections, or child rearing -- are guided by how society is trying to arrange its human affairs. Thus social scientists investigate business cycles with a view to moderating their social costs, war-making with a view to lessening its occurrence, memory and cognition with a view to improving information processing, and so forth.

Consequently, social scientists often and correctly view social knowledge as effective when it contributes to an understanding of a subject that is important to someone else -- whether the "someone" is an individual, a social organization, or a nation-state. To a degree, this is true for all forms of knowledge. Knowledge matters when persons other than the producers of knowledge are listening. The lay person expects today's biology to change tomorrow's medicine, today's art to change tomorrow's industrial design, today's humanistic inquiries to change tomorrow's value perspectives. When applied to the social sciences, expectations take on a different character, a more urgent tone. The natural sciences, the arts, and the humanities are not usually interrogated for immediate answers to current social questions. For the social sciences, however, today's research is supposed to help society think about today's choices concerning security strategies, economic policies, or social welfare goals.

Consequently, effectiveness for the social sciences often occurs at the point of overlap between the research agenda and the political-economic agenda of society. In fact, it is not always easy to separate the research agenda from the political-economic agenda. In a more direct way than the natural sciences, the arts, or the humanities, the effectiveness of the social sciences is mediated by political and economic structures involving persons outside of the social sciences, structures that are also a subject matter for social science.

This creates a special set of problems for social sciences. Social knowledge is effective insofar as it changes social structures that are of value to at least some of the people who work within them. Effectiveness, however, must not be confused with popularity. Effective social knowledge will often be viewed as subversive to existing social, economic, and cultural arrangements; for that reason it will be opposed even as its effectiveness is demonstrated.

I note this obvious point simply to underscore the difficult task set before this conference. Knowledge serious enough to be effective is not always welcome or comfortable knowledge. The experiences of Galileo testify that this has long been true for knowledge in the natural sciences. But in the scientific culture of the 20th century, the natural sciences, at least in principle, claim as their subject matter things that differ from (or at least are not likely to undermine) current social and economic arrangements. It is difficult for the social sciences to make such a claim.

We have to ask, then, whether it is advisable, or even possible, to separate the topics of the first two panels of the conference. Can the social sciences "create effective social knowledge" unless they start from or at least systematically take into account "the social knowledge requirements of society"?

I do not believe so, and support my argument with some relevant case material, starting with a brief sketch of the history of the social sciences in the United States.

In the 1880s, when the modern social sciences were first being organized in the United States, the research agenda and important parts of the nation's social agenda overlapped. It was a period of civil strife and industrial violence. The industrial elite was seeking ways to resolve labour conflict without thwarting the momentum toward industrial capitalism. Similarly, the labour reform movement, aided by the clergy and social workers, pressed for changes in working conditions and wage policies, and for relief from urban squalour. The newly formed social science disciplines, themselves emerging from moral philosophy and social work, focused their research agendas on those issues of importance both to the industrial elite and to the social reform movements. Structures were created to help research contribute to the deliberations and strategies of those trying to make a difference, one particularly telling example being the influential Bureau of Labor Statistics (founded in 1885), which provided the statistical base for wage policies.

The relationship of the social sciences to the national agenda was less close, interestingly enough, half a century later. During the intervening decades, important parts of the social sciences had turned their attention to achieving scientific respectability, and had in the process steadily detached themselves from the social/political agenda. Thus as the United States fashioned its welfare state during the 1930s, the disciplines were not

positioned to make a level of contribution commensurate with their progress over the previous half-century. Of course, some individual social scientists served in the New Deal administration with great distinction and, in a few instances, important structural links were formed. Rural sociologists and agricultural economists maintained close working relations with relevant federal agencies, and were instrumental in designing farm credit systems. Economists and statisticians helped design the social security program. However, the voluminous Recent Social Trends, commissioned by Herbert Hoover and delivered to Franklin D. Roosevelt, had little impact on the New Deal.

A different story can be told of the Second World War years. In dozens of important ways, American social scientists were mobilized on behalf of the war effort for propaganda analysis, morale studies, wage and price policies, resource planning, bombing surveys, military recruitment, and the design of the GI Bill. In no period before or since were the social scientists so centrally involved in the major issues on the national agenda. Some of the successes pioneered during the war -- large-scale team research, evaluation methodologies, national surveys, and multidisciplinary research institutes -- carried on into the 1960s, when there was a spurt of activity associated with Lyndon Johnson's Great Society legislation, and reappeared in the 1980s, this time associated with the Reagan administration's deregulation reforms and related efforts to introduce "supply-side" economics.

A central lesson to draw from this historical sketch emphasizes institutional innovation. The demand for social science knowledge has often been associated with the search for greater efficiency in existing institutions or for new institutional arrangements -- whether a Bureau of Labor Statistics, a Farm Credit Administration, a GI Bill, a Headstart Program, or economic deregulation. To respond effectively to the demand for institutional innovation requires a prior understanding of existing incentive arrangements and institutional practices, which in turn needs ongoing working relations with the people for whom the knowledge is being supplied.

We see this clearly by contrasting the comparative effectiveness of different social science disciplines. In the United States at least, economics wins this contest. Professional economists serve on the Presidential Council of Economic Advisors, they dominate important planning and management bureaus throughout government and the commercial sector, they are regularly called in as consultants, and they have access to vast amounts of government-produced data as well as the research support necessary to analyse them. The reasons for these influential arrangements go beyond the technical sophistication of economics, although that factor cannot be ignored. No other social science discipline works as consistently or directly with the issues that most people, especially those in positions of power, take to be the most important in society: business cycles, unemployment, productivity, fiscal policy, and so on.

It might be argued that a federated nation, especially when the federal structure encompasses ethnic, or, as in Canada, linguistic diversity, might need a council of anthropological advisers as much or more than it needs a council of economic advisers, but this reasoning is not widely accepted.

Economists inhabit that critical territory in which ideas and power, analysis and policy, the university and government/business come together. Consequently, economists are expected

to understand the prevailing institutional arrangements, and suggest efficient methods and innovations that will be viewed as natural extensions of what is already in place.

In wandering into the terrain in which knowledge and power intersect, I invite criticism. Have I not simply restated clichés about applied research? Worse, does my argument not imply that knowledge, to be effective, must be pursued in terms acceptable to established social interests?

These criticisms, although understandable, miss an important point. To argue that an effective social science is one embedded, to a degree, in the priorities and purposes of the nation in which it is practised does not imply that social science can speak only to the powerful interests in society. Words such as priorities and purposes are not the property only of the powerful and privileged (or so we hope for our democratic societies). The less advantaged have interests to protect and advance and they regularly make effective use of social science results and arguments. Nor does the argument assume that only policy studies can lay claim to being effective social science. Research unconnected to the current array of policy options can be relevant to the broader agenda of issues facing society and can suggest policy options altogether different from those currently under consideration. And I hope my argument is not misunderstood for excluding the critical tradition in social, economic, and political studies. Quite the contrary, it affirms an obvious point. Social criticism takes aim at practices within the society from which the criticism emerges.

An example will help clarify the points of the previous paragraph. Foreign area studies in the United States emerged as the country became an international power following the Second World War and the break-up of the colonial empires. Had area studies not emerged, Americans would, in retrospect and with reason, have complained that their scholars were curiously detached from the global transformation going on even as their own society repositioned itself in world affairs. Area studies have deepened American understanding of a vastly altered international order. To say this does not reduce area studies to a policy science or deny to them a role in the critical tradition or make of them adjuncts of political power. All of these things are true to a degree, but it is a very partial truth and it ignores the broader effectiveness associated with the social intelligence provided by area studies.

It is difficult, probably impossible, for the social sciences to stand aside from how society is trying to arrange its affairs and yet be effective. With all the ambiguities and complexities implied, social science must continually get involved with the nation's culture, polity, and economy.

If effective social knowledge emerges through the research agenda, it appears also, and perhaps more importantly, in the people who constitute the research community.

Professional training in the social sciences provides distinct ways of applying intellect and specialized skills. The phrase "professional training" brings to mind the diagnostic skills of the doctor, the reasoning skills of the lawyer, the managerial skills of the business executive, or the interpersonal skills of the social worker.

What does professional training in social science offer? It provides a way to think about human affairs, what might be called reasoned scepticism toward common sense. Of course, all func-

tioning members of society are skilled in thinking about human affairs and it is the aggregate of these skills that are conventionally labelled common sense. But the social scientist is trained to go further, to recognize what common sense cannot accomplish. The social scientist, for example, is especially alert to evidence that runs counter to personal experience, and he or she uses methodologies to search out information that might contradict personal experience. The social scientist understands that statistical distributions reveal dimensions of human behaviour and group characteristics that cannot be discovered by extrapolating from one's own experiences and contacts; moreover, that these underlying statistical distributions (base-rate information) offer important tools for making judgements and taking decisions under conditions of uncertainty.

Professional training in the social sciences forces recognition of the pervasive human quality of self-deception. It then instructs the practitioner to apply this awareness of self-deception in designing the methods of inquiry that guide research about human affairs. In this way, self-interest in the outcome of research, if not eliminated, is at least brought to the surface so it can be to some extent controlled. Lay thinking about social affairs does not proceed from a similar set of protective procedures, and thus is more subject to self-deception and self-interested interpretation.

Social science also moves beyond and even counter to common sense in the analytic categories it trains its practitioners to use: unintended consequences, risk-aversion, information overload, ego defence, contextual effects, dissonance reduction, floating aspiration levels, ethnocentrism, and so forth. None of these analytic constructs is uniquely the property of the social sciences. And many of them, after being introduced by social scientists, are absorbed into conventional wisdom. But no other professional training, to my knowledge, offers a working familiarity with such a wide array of ways to think about the complexity, the interdependence, and perhaps even the perversity of human affairs.

There is, then, a characteristic way of thinking associated with social science training. It has become part of the collective intelligence of modern societies. Moreover, it resides in the individual social scientists as well as in their research results, journal articles, data sets, monographs, and books. A society that fails to train persons in this way of thinking subtracts something of value from its supply of effective knowledge. China, during the Cultural Revolution, would be a case in point.

If this formulation of effectiveness is agreed to, it follows that there can be effective social knowledge only if a continuous supply of intelligent individuals are recruited to the social sciences. The point is obvious but not trivial. The social sciences are not at present recruiting adequate talent. There are various excuses for this failure — limited research funds and limited employment opportunities being chief among them. These market forces, however, are but part of the explanation.

Talent flows to disciplines that raise consequential and compelling research questions. The development of technical sophistication, impressive as it has been in the social sciences, especially over the last three decades, is a necessary but not sufficient condition. Technique itself cannot engage the attention and energy of younger scholars. Their attention and energy will turn elsewhere unless the technical sophistication is attached to questions that are seen to matter. Of course, a good deal of what

social science investigates does matter, as was suggested in the brief historical sketch above. There are hundreds of scholars working today on challenging and consequential research issues. But it is fatally easy for social science disciplines to become preoccupied with questions of only limited importance to the society in which social scientists practise their trade. When there is a shortage of intellectual talent, the social sciences can ill afford such preoccupations.

I offer an example from the United States. For more than 30 years international security studies have been dominated by physicists and engineers proficient in technical discussions of weapon systems, by security specialists proficient in game-theory analysis of super-power tensions, and by foreign policy experts. The field rests, consequently, on a deep, and in many respects, impressive scientific base, but a narrow one. We have waited 30 years for the social and behavioural sciences to bring their theories, methodologies, approaches, and insights to international security matters in organizational theory, risk analysis, studies of perception, public-choice models, and area studies (and not just by Soviet and Eastern European scholars).

During the decades in which the social and behavioural sciences were greatly improving their technical base and disciplinary theory, they were largely detached from what emerged as the most difficult issue of the period: lessening international tension and reducing the threat of nuclear war. Such detachment, it seems to me, cannot but adversely affect the flow of new talent and intelligence into the social sciences.

The two requirements -- one having to do with what is studied, the other with the talent of those who do the studying -- are obviously reciprocal. The more compelling the research agenda, the higher the quality of scholars who will be attracted; and the better the scholars, the more interesting will be the research agenda. The challenge is one of fashioning a compelling set of research problems for social science disciplines. I have suggested that research problems have to connect with -- and be seen to connect with -- an agenda that matters to persons outside the social sciences.

This in itself should not be too difficult, for it is in the nature of the social sciences to select their research problems from the array of issues that constitute individual and social agendas. The difficult task is to accept the challenge and run the risk of saying things about these issues that other forms of study -- legal, therapeutic, moral, managerial, engineering -- cannot. A social scientific perspective on human affairs is not a superior form of reasoning. It offers, however, a perspective that is not available elsewhere, and thereby gives value to society. In this perspective we as social scientists find our claim to effectiveness and ample evidence to support this claim.

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PANEL 2: THE SOCIAL KNOWLEDGE REQUIREMENTS OF SOCIETY: HOW WELL FULFILLED?

Government Research and Society's Need for Social Science Knowledge, Lynn McDonald

In this paper I want to address the question of how well government research meets society's needs for social science knowledge. I am convinced that these needs are not well met and will illustrate this point by describing some of the problems I have encountered as a professional sociologist and as an opposition MP and critic.

The background information for this conference points out that federal funding for social science research has been decreasing. Social science research done by the federal government has declined even more during the past five years.

The reduction in funds for internal government research does not disturb me as much as it does some other people. When I recall conferences that I attended as an academic, I remember that government researchers always had more money than university researchers had; they were always better dressed; and whenever a progressive resolution was brought forward, they always wanted their abstentions to be recorded. I do not recall that they delivered any memorable papers, although this fact probably reflects the constraints of their positions rather than their abilities as individual researchers.

At the same time, government research has an important role to play and great potential. I am disappointed to see that it is not realizing its potential. Inadequate research means not just the loss of excellence; more importantly, it means that Canadians are being short-changed on social science knowledge.

Government research, it seems to me, is needed to establish the scope and nature of social problems, to design government programs to solve them, and to evaluate those programs. The federal government spends an enormous amount of public money; in many respects it does not do so very well. Every department has hundreds of programs (everything is called a program these days), each one designed to meet identified needs. But rarely are programs evaluated to determine whether the needs are being met or whether the program is having adverse effects in other areas. Evaluation of government programs is one area of research that needs to be substantially improved.

There is a system for the financial evaluation of programs under the auditor general, who looks for efficiency. Perhaps there should also be an auditor general for effectiveness to evaluate whether a program actually solves the problem in question without creating other, possibly worse, problems. Such evaluations should be part of the normal reporting on government programs.

In the final analysis, how can there be true financial accountability in the absence of any evaluation of what the program actually does? Dollars can be carefully spent in accordance with rules governing expenditures, but they are wasted if needs are not met or if other problems are created.

Program evaluators, whether they come from the public or private sector, should have a high degree of independence and proper academic qualifications. It might be wise to choose people who are on leave from universities, for example, so that if the results of their evaluations were unpopular, they would still have jobs to which they could return.

As social scientists, we know enough to be realistic about institutional constraints. Social science research often threatens governments, and there is a long tradition of blaming the messenger for the bad news. It should not be surprising that some of the best research has been done by royal commissions, task forces, and other short-lived groups that do not have a vested interest in defending a particular program or ministry.

During my time as justice critic for the New Democratic Party caucus, I became familiar with many of the programs run by the justice department. The catalogue of these programs was extensive, and new programs were constantly being added to respond to new situations. But whenever I tried to get information about what was being done in a specific area, I received inexcusably vague replies.

My experience with the problem of the high proportion of Native people in prison provides one example of the government's hedging. In answer to my enquiries about action to solve the problem, department officials pointed to their diversion programs. I then enquired about the success of these programs.

The reply I received deserves a prize for obfuscation. "Research on diversion in Canada," says a report from the Department of Justice, "unfortunately appears to have been given a much lower priority than project funding." That is an understatement: in fact, many projects have never been the subject of systematic, or even unsystematic, research. The report goes on to say that "much of the research that has been done is limited to program description." Describing a program and providing a statistical analysis of program data is here being passed off as research. "Consequently," the report concludes, "the research findings do not provide a basis for assessing the impact of diversion on the justice system."

The reply consisted of four pages of similarly vague comments. There simply was no research to answer my question about whether the diversion programs are actually diverting people from the prison system.

Yet common-sense analysis of the rising rate of Native imprisonment suggests that the programs are not working, unless one argues that Native people are becoming more criminal, which no one does. Public funds are being misspent in vast amounts to provide a vast network of police and correctional services to send Native people to jail at six times the rate of non-Natives, and then additional funds are being spent to divert Natives from the same services.

Why is the evaluative research not done? Perhaps it is because government departments, like other organizations, are not eager to find out that their programs are failing.

I think we have to recognize that much of the research done by government departments at all levels is not, strictly speaking, research. What passes as research is often mere description of a problem, accompanied by a plea for a budget increase for the ministry. Sometimes research is done to justify otherwise unjustifiable expenditures, or as a public relations exercise intended to make a minister look good. Seldom is the research done to answer honest questions: Does program A do any good? Does it do as much good as program B or C? Or does it cause more problems than it solves? These seem to be reasonable questions to which the public and opposition members on their behalf are entitled to properly researched answers.

I want to suggest some possible solutions to this problem. I believe we need to spend more money on social science research of all types. But for evaluative research in government departments we need to establish safeguards to see that the money is properly spent, that there are independent means of program evaluation, and that the results are published. Secret research is not acceptable.

To do useful research, government researchers need to listen to program recipients, advocates for target groups, and academics with specialized knowledge of problems, not just to other government officials. This may seem to be an obvious thing to do, but it is not in fact standard procedure. For example, the Centre for Justice Statistics is supposed to have two advisory committees, one composed of people drawn from other provincial government bodies, and one composed of academics and independent researchers. Only one of these committees has been established -- the first one. As a result the provinces alone give advice on which statistics to collect and publish. In other words, people who have an interest in preserving the status quo help determine how statistics are gathered and used; those with academic or nonpartisan concerns, or critics of the system, are seldom heard from. Reformers, people outside the system who might like to do things differently, and people with an interest in justice data have no voice in this most important centre for data collection and publication.

The government could make a further contribution to social science research by making more data available to independent or academic researchers. A great deal of social science research is done by university researchers on weekends or workday evenings. Easier access to data at such times would facilitate their work. Statistics Canada collects an enormous amount of data (it is responsible for a large portion of the expenditure on social science research in this country). The results of this work should be made more readily available to other researchers.

Research can be categorized in a number of ways. For example, there are distinctions between instrumental and theoretical research and between critical and uncritical research. By instrumental research I mean research that provides information about the functioning of a specific program or about a particular problem; by theoretical research I mean a disinterested study of how societies and groups operate. Obviously, the two types are not mutually exclusive, and in both types researchers work either from an orientation that supports the status quo or is critical of it.

It seems to me that all these types of research are needed. In my experience, the most progress results from fruitful exchanges between instrumental and theoretical researchers. In the answers to specific research questions, a theorist may find new information about how societies operate generally. Researchers who are sensitive to the way societies operate may suggest new directions for solving specific problems. As well, researchers can benefit from work done by someone else by looking at it from a fresh perspective and by doing new things with it.

As social scientists we need both instrumental and theoretical research, government research and research sponsored by the Social Sciences and Humanities Research Council. We need research by conventional social scientists in academic departments and by less conventional researchers (for example, researchers for advocacy

groups), and we need research by people who have different perspectives. All of us have an interest in seeing all these types of research receive some attention because we all benefit from them in many ways.

I want to conclude with an example from my own research. As part of a study on law and order issues, I looked at how research knowledge was used in the 19th century.[1] During this period an enormous amount of work was done in the criminal justice area; whole schools had developed alternative explanations for the rise in the crime rate. There were Marxists and biologists; there were French sociologists like Emile Durkheim, the Italian school of thought led by Cesare Lombroso, a British school, and German schools as well. In the vast literature on the subject, a variety of different theories were debated to explain why the crime rate was rising. But from roughly 1850 onward, the crime rate was actually declining in Britain, and the decline had begun even earlier on the continent.

Professors of law at the most distinguished universities, all the government researchers from the Home Office, and the major government research bodies of Europe were devoted to explaining a phenomenon that did not exist. Some of them actually published the contradictory data in their appendices. While their texts explained why their own theory, and not that of some other school, was able to account for the rising crime rate, the raw data showed that the crime rate was actually declining.

Schools from the far left to the far right ignored the facts because each had an interest in rising crime rates. Police departments, prosecutors, judges, and various research institutes needed a rising crime rate to justify their existence, while the Marxists used it to show that capitalism was failing. All these people had such a strong interest in a rising crime rate that they could not see that the exact opposite was happening.

Among those researchers who later recognized the truth, some were government researchers and some were not. Apparently, the inability to read statistics can afflict both government and private-sector researchers.

I want to end my remarks with a plea for humility, diversity, and the willingness to learn from one another. And I want to express my support for institutions that accomplish practical tasks as well as for institutions devoted to criticism, advocacy, and independent research. Because understanding can come from many places, research and research funding should be varied and broad in scope. Let us hope that from all this work a little wisdom will emerge.

Notes

1. This study was published as The Sociology of Law and Order (Toronto: Methuen, 1979). See also my "Theory and Evidence of Rising Crime in the Nineteenth Century," British Journal of Sociology, 33 (1982): 404-420, for a more detailed account.

Social Needs and Social Science Research: How to Restore the Balance, Jean-Louis Roy, Director, Le Devoir

> To be together consciously, inventively, is to work in common with conviction and realism on a specific level, but in cooperation with other levels, to constantly reduce the risk of atrophy inherent in any society.
>
> Pierre Emmanuel

Reduced funding, constant tension between sponsors and directors of funded organizations, often futile debates between these organizations and researchers, multiple viewpoints within the research community, destructive scepticism on the part of potential research users -- all the alarms are sounding. Social science research in Canada is in a state of crisis.

Where are the problems? What are they?

Is Canadian society slowly convincing itself that it can do without social science research, that it should direct its attention to other areas, that forsaking social science research will ultimately have only a marginal impact on the wellbeing of the country, on the way it operates, and on its development?

From what perspective can we understand what is happening to us?

Is the crisis primarily a by-product of the economic recession, a budget crisis likely to resolve itself through eventual recovery and the strengthening of lobby groups responsible for persuading the public authorities to grant more resources to the research community?

Does the crisis stem from the visibility of the new technologies and the challenges they pose for our society, so that other issues no less pressing, but which the social sciences could help to understand and to solve, are being overlooked? Or is the crisis more serious, at the heart of the research community itself? Are these researchers, like so many others, shaken in their convictions, at the mercy of changes that are overtaking and weakening them?

What is the basis for the current scepticism? What reasons and value judgements feed the crisis? Only one fact seems certain. The potential ramifications of the crisis seem more and more to threaten the future of social science research in this country.

I would like to present three hypotheses and discuss them with you. I have drawn them from personal observations, enriched these past weeks by the contributions of representatives from various groups involved in fields that are likely to derive benefit from social science research.

Rightly or wrongly, social science research is increasingly viewed as a vast, far-fetched, and incoherent exercise, an insular pursuit unrelated to the most pressing social needs of the last decades of the century. Many consider the objectives of social science research inconsequential and its approaches unrealistic. In short, the relationship between current and future social needs and the social science research being done is no longer very clear.

This perception is destructive. Such a self-centred world appeals only to a captive audience. For most, it would represent a sort of artificial paradise or escape for those who could otherwise

choose the areas that would have priority, define the research hypotheses, schedule the research, and disseminate the new knowledge gathered.

The curious paradox is that such harsh criticism always accompanies statements emphasizing the need for relevant research.

One could say that such is the fate of the research community; that this sort of criticism of the social sciences is inherent and inescapable. One might mention the elite (in the least pejorative sense of the the term) status of researchers and the difficulty of conveying the epistemological function and the potential value of many studies. One might point out that the spinoffs of a significant number of studies are, like oxygen, invisible, even for those who depend on them for survival.

Certainly, when considered one after another, such observations are not completely unfounded. But should we not delve further? Given the current decline in support and respect that is undermining the social science research community, should we not dare to question the criteria and scholarly knowledge that we may have wrongly held to be immutable?

Curiously, such daring links us up with a long-standing tradition. In the periods of history in which social science research was applied with the greatest effect, it was primarily because of the numerous, close links between researchers and the most innovative elements of society. The crisis that has recently developed in this country between the providers of funds and the researchers will deepen if researchers cannot count on high-profile, dependable allies who have also been affected by this crisis.

This is my first hypothesis.

The research community seems to me to be tragically isolated at this time. It alone is discussing a subject that should normally be the concern of a large number of groups, organizations, and individuals.

Where are they? Who are these groups and organizations that have benefited by the specific activities of researchers and that would normally attest to the usefulness, effectiveness, and necessity of social science research? Which groups and organizations have been adversely affected by the reduction in social science research? Which groups and organizations are fully aware that a cut in research will have a negative effect on their needs and on the services they provide? Who are these allies who are currently missing from our meetings and discussions?

In the complex balance of power in a democratic society and in the raw materials that make up public opinion -- society's inexorable and ephemeral master -- isolation is virtually synonymous with vulnerability. Admittedly, the research community may not feel isolated, for its organizational literature clearly proves the breadth of its networks. For example, a particular council in response to a particular department circulates questionnaires, comments, and evaluations to dozens of university vice-presidents. A group of researchers in a particular discipline, in response to the choice of the council circulates petitions and supporting documents to dozens of department heads. All this activity, which has increased in recent years, doubtless necessary. But it is not fooling anyone, either in its own world or the world at large. The same forces are still at work that have been around for a long time.

Hence the astonishment provoked by some of your debates. I am referring

specifically to the lively opposition kindled by the decision of the Social Sciences and Humanities Research Council to accept favourably the concept of strategic research, subject to the condition that the Council would be the sole judge of the value of the research topics and that researchers' freedom would be preserved. The Council's president, André Fortier, described the reaction of many of the researchers and learned societies as a veritable uprising. They vociferously opposed the imposition on the world of independent research of the arbitrary choice of themes. When we examine the areas selected for strategic research programs, we can only agree with the wisdom of the Council and the intelligence of its choice.

Certainly government interference must be fought. But the freedom of research and the independence of researchers cannot be absolute. Consideration must be given to new social needs arising out of new economic circumstances and to changes that are overturning the established order of things. Many researchers have apparently failed to grasp the inherent distinction between contract research designed to provide the government with justification for its hypotheses and independent research designed to help society understand social change.

Whether correctly or incorrectly, social science research is viewed as being of little practical use. Everyone knows the rate at which consultative bodies that sponsor research have developed in our societies under the patronage of governments. We have seen the creation of parliamentary committees, advisory committees, task forces, royal commissions, summit meetings and sector-based conferences, round tables, beige, white, and green papers, summaries, annual reports, and other forms of support for the paper industry. In times of growth, the spinoffs from these activities and studies were substantial, visible, and measurable by all. This is no longer the case. The many groups that had become accustomed to participating in this necessarily prolific activity are now questioning the utility of such exercises and are astonished by the duplication they see.

Having been accustomed in the last two decades to seeing their work bear fruit in the hands of the decision makers, such groups are increasingly getting the impression that this accumulation of data and knowledge, especially in the vast field of social science, constitutes a closed, if not sterile activity. This had led to growing scepticism and a negative view of these pursuits and anything resembling them. Of what use is it? they say, and not without reason.

Admittedly, such remarks require qualification. Nevertheless, they are not completely unfounded. Attention should be paid to the messages they convey and the questions they raise.

One of these questions, in my opinion, is of major interest for the future of social science research. It concerns the adaptation of the research community to the profound changes that are shaking western societies, whether they are governed by so-called neo-conservative regimes or social democratic ones. Governments are no longer, nor will they be again in the foreseeable future, the first and foremost forum in which social changes are planned or in which structures are designed for the services made necessary by the emergence of new social values or needs.

The bureaucratization of public services and the depletion of government resources are well-known phenomena. True, new values and needs do slip into political rhetoric. But their presence in

official language no longer means that they will lead directly to new policies. The issues of single parent families and aging are good evidence of this.

Have researchers taken note of this change? Are they fully aware that voluntary groups, benevolent associations, and service cooperatives are multiplying rapidly in our societies? Do they believe that the future lies in this direction?

Have the researchers who have been closely associated with public and para-public organizations in recent years made the major readjustment imposed by the forms of management for social needs? Or are they still umbilically attached to the public sector, even as it is turning in on itself in fear of harsh cutbacks? Because of their lack of flexibility and sensitivity, will they become strangers to the world that is unfolding? Are they imprisoned by the past, by relationships, and by structures that once brought them prestige, resources, and fame? Are they prisoners and partners of a system that yesterday was fertile, but that today is languishing, centred around institutional thinking of uncertain relevance, to say the least?

My second hypothesis may be summarized as follows. Social science research is condemned to regress and become increasingly irrelevant if the research community does not place, at least partially, and in a frank, visible, and significant manner, its tremendous human resources at the service of these groups, associations, and cooperatives. These are the new and growing areas in which social interactions arising from new values and needs are developing.

This adjustment to present and future realities certainly implies a capacity and a willingness to seek in new ways and in new places mutual enrichment like that born of the close ties between researchers and public organizations in the last few decades. For many researchers, it implies a complete transformation in the development of their hypotheses, in their method of perception, in the measurement and assessment of their work, and in the way in which they communicate the results.

What, then, is the purpose of the social sciences? On a specific level, according to Pierre Emmanuel, its purpose is the development of social knowledge. That is the specific function of the social sciences. However, on a cooperative level, it can be said to "reduce the risk of atrophy inherent in any society."

Obviously, this task goes beyond the responsibility of the research community alone. But without the researchers, without their continued and free contribution, the foundations of renewal and perpetual recovery will crumble.

The risks of atrophy inherent in any society are numerous. They include government interference in pressure groups, dependence on voluntary associations, lack of attention paid to the forums in which social values and needs are developed, media that are unconcerned about distinguishing between the ephemeral and the durable in choosing and processing information, loss of interest in human and group rights, all factors that contribute to atrophy, the impending threat to any democratic society.

If the primary function of the social sciences is to develop social knowledge, they must also recognize, enhance, and supplement organizations combatting this threat. They cannot do it alone or in an isolated manner. Many social groups and voluntary organizations feel abandoned by the research community. Their directors do not know either the

researchers or what research is under way in the specific areas in which they are involved. They do not know who or what is involved when presented with lists of projects c nducted by researchers, even those in the cities in which they are located. They are astonished by their own ignorance of the researchers and the studies in areas that most concern them.

As I mentioned before, I brought together various representatives of action and service groups working with children's aid, protection of the rights of the ill, and senior citizens. Frankly, for these spokespersons, faced with an overwhelming demand for services and a lack of available resources, you do not exist.

I would like to point out that the directors of many volunteer and benevolent organizations are educated people, often university graduates who have a great deal of varied and highly valuable professional experience. They are not concerned with factitious objectives or ideals that are as vacuous as they are noble. They are in daily contact with organized groups, primarily the public and para-public services, which seem to them to have no time constraints whatsoever. They cannot help but draw comparisons and to note that they are swamped by their clients and their needs, especially research needs. One director pointed out that the organization she headed -- an organization that had been providing child-care services in Montreal for 10 years -- had never seen even the shadow of a researcher, although there was a glaring need for research and assessment. Evidence of this sort abounds. Such remarks are not intended to insult researchers, but to reveal the extent of a gap that adversely affects everyone -- researchers, the persons providing the services, and their clients.

I come to my third hypothesis. In view of the preceding points, the research community and the funding councils would be wise to pursue jointly the following objectives:

(a) Substantially expand the consultative process for research in Canada and ensure a greater percentage of researchers and their representatives in all cooperative efforts. The time of ghettos is past. The research community cannot live outside the common law. I realize that certain elements have grasped the significance of this categorical imperative. A new balance must be sought and found between the freedom of research and a widespread consensus on its objectives. This balance will ensure definite advantages, such as a wider acceptance and a better understanding of studies of social problems.

(b) Find the most effective means of disseminating the results of research that has been completed or that is under way, especially to potential users. Obviously, the results must continue to be passed on to researchers in the same discipline and to the universities in general, but they must also be disseminated beyond these circles. Meetings of learned societies, the publication of specialized journals, and conferences are naturally and necessarily a part of this process of dissemination, for they serve the specialized audiences very well. But what about interested members of the public, or organizations and associations working in areas that could use and even enhance and supplement the work of researchers?

(c) Devote a substantial proportion of the available resources to projects that are of direct interest to benevolent groups and service organizations working in the social field.

(d) Ensure that projects of this sort, developed jointly by researchers and directors of organizations, are favourably received.

(e) Develop pools of researchers available to conduct studies on behalf of voluntary and benevolent organizations.

Are these aims consistent with the maintenance of independent research? What basic freedom would be lost provided that the topics chosen were judged to be of value by a researcher or a group of researchers and if researchers were assured of having control over the work? Can a distinction be made between contract research accomplished for the government and contract research conducted for specific groups?

The foreseeable benefits of such a change in direction are numerous. Even in terms of knowledge, this joining of forces would benefit research. In all likelihood, it would lead to new forms of direct and effective dissemination. Moreover, it would help to eliminate the pervasive and destructive doubts surrounding research activities that tend more and more to identify them with a product that is of little social utility. Finally, it would assure the research community of new allies in society who will testify that, without social science research, the menace of atrophy will draw closer.

The Social Knowledge Requirements of Society: How Well Fulfilled?, R.J. Van Loon, Faculty of Administration, University of Ottawa and Royal Commission on the Economic Union and Development Prospects for Canada

Introduction

The questions posed for the discussion of this topic* deal with both general social science knowledge and with the social sciences as they are applied to decision making. I will discuss them in relation to decision making and in doing so I will try to develop three themes.

The first is that it is important to have realistic expectations about policy making, for at least two reasons. First, there are very few final answers in the sphere of public policy. There are only partial solutions, which, in their application, are quite likely to create other problems. Second, public policy can do little to change basic human behaviour. Policy makers may be able to use what they know about basic human motivation to create incentives that will modify behaviour while the incentives are in place, and they have become relatively adept at distributing money even if they cannot predict the ultimate consequences of their disbursements, but for now any expectations of policy cannot go beyond that.

A second theme is that expectations for social science research itself must also be realistic and that research must be "sold" on the basis of these realistic expectations.

A third theme is that objectives must be related to potential and resources. Canadians may have already achieved a reasonably good institutional framework for doing that, therefore the need may be more for fine-tuning than for radical change.

Social Science, Planning and Politics

> "The highest form of analysis is using intellect to aid interaction among people."[1]

To understand the relationships among social science, planning, and political decision making, an obvious, but far from clear-cut, differentiation between pure and applied social science must be made. The distinction can be made by asking the question: is there any immediately foreseeable application for the research? This paper deals with applied social research, that is, research for which there is an immediate application.

A distinction should also be made between planning and politics.[2] Planning may be defined as the systematic search for and application of knowledge to determine the best answer to a policy problem. Politics is one process of social interaction (the market would be another) that determines what should be done about a policy problem. This distinction suggests an essentially

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* The following questions were proposed in Social Science Research in Canada: Stagnation or Regeneration by John E. Trent, a manuscript report prepared as background for the Social Science Research Conference:

a) What categories, types and sectors of social knowledge are required?
b) How well has research served the different categories, types and sectors of social knowledge?
c) How well do the social sciences provide research for decision and policy making?
d) How could social science research better provide knowledge, concepts, and expertise for social problem solving and decision making?

passive or advisory role for planning and for applied social science.

How do politicians determine which problem to attack? They may do so on the basis of the volume of noise raised by a group that wants something from government. They may be reacting to some need defined either by social science research or by political actors on the basis of their interaction with their own environment. However, defining policy problems on the basis of volume of noise alone may produce solutions that may satisfy the complainers' interests but that eventually create more demands either from them or from others. If policy problems are identified simply on the basis of need, there may be no solution. That situation courts disaster for it creates expectations that cannot be met and will eventually erode support for the decision maker. Hence the iron law of political attention ought to be: no solution, no problem. Hence too, a major qualification to what looks at first like a passive role for planners and social scientists. One of their functions should be to spot solutions and thus ultimately to define the range of problems from which decision makers can accept issues and make choices.

Thus two central questions in our evaluation must be: how well does applied social science use intellect to aid interaction by identifying potential solutions? can it thereby define the appropriate issues and choices for those interactions that lead to policy? The question is, of course, unanswerable in quantitative terms, but it does suggest what our ongoing objective and role should be in the policy process.

Expectations

Public policy, then, is the outcome of that form of social interaction called politics and the policy-oriented objective of social science is to provide support for this process. There are two contexts within which the fulfillment of the social knowledge requirements of society must be evaluated: the expectations for policy and the expectations for social science itself.

1. Expectations for Policy

Unrealistic expectations for public policy will ultimately reflect badly on social science, which is assumed to be a major determinant of policy choice. The failure to eradicate poverty may be blamed on economics and sociology, the failure to avoid business cycles is a failure of Keynesian economics, high unemployment is a failure of monetarism, and periodic bouts of national disunity are a failure of political institutions.

The problem is that Canadians expect far too much. Many of these conditions are inherently unsolvable. A further problem is that promising solutions to conditions that are not solvable calls the legitimacy of the role of government into question.

Poverty can perhaps be alleviated, but not eradicated. Business cycles are rooted in basic human behaviour and emotions and will not disappear. National disunity is rooted in cultural differences, territorial distance, and provincial boundaries, which Canadians would not change even if they could. Regional disparity might, under some unforeseeable circumstances, be solved, but only at an immense cost in growth and productivity.

Poverty, at least insofar as it is a relative term, might be reduced by greatly flattening the income distribution; some totalitarian regimes claim to have done so. But such solutions create problems and the larger the solution and the more completely one problem is eradicated, the more other ones will be created. Canadians should certainly aim for a net improvement

but they must temper expectations about what public policy can do. It cannot solve most significant problems.

Government does some things better than others. It moves dollars around fairly efficiently, if not necessarily with the advertized effect. It does quite well as a third-party insurer for medical care, unemployment, or retirement. It delivers some services in a manner that seems to satisfy many people: police, highways, education (mostly), and hospitals, for example. But it often regulates awkwardly at best and delivers other services badly, and where it does deliver money or services well, it does not necessarily solve problems; at best it alleviates conditions.

If the government cannot solve major problems once and for all, it can at least improve things by learning from its mistakes. This depends on a change in attitude. Governments and the public tend to view negative evaluations as evidence of personal incapacity rather than as a learning opportunity brought about by institutional inexperience or by a wrong choice of problem -- one which has no solution. Of course people and institutions do fail, but in an experimental world we learn more from failures than successes and we must expect more of the former than the latter. Social science can make a valuable contribution to public policy through evaluation but it will do so only when social scientists inculcate the attitude that policy failure is not personal failure. Unfortunately, on the subject of how to change attitudes, social sciences are perhaps at their weakest.

Two other points should be made about our expectations for policy. The first is that policy should not be approached as if goals were fixed. Remember: no solution, no problem. To restate that slightly: no potential and foreseeable achievements, no goals. If societies set out to alleviate (not eradicate) poverty, there should be at least the reasonable expectation that they can do so. If they set out to attenuate the business cycle, there should be some possibility of success. Policy goals must therefore be continually adjusted in line with anticipated successes and continually realigned with available resources. Here too, social science should assist in shaping social interaction by defining the appropriate range of goals.

The second is that the social interaction that makes policy choice can and should be informed by social science advice, but it will never be determined by it. Political power is, after all, determined by many variables of which knowledge is only one. Personalities, emotions, money, ability to mobilize a clientele, and organizational resources will all play roles, perhaps larger than knowledge. No Ottawa economist would recommend continuing heavy water production or the opening of a new colliery on Cape Breton Island. Many, if not most, regional industrial grants are denigrated by all economists and almost all bureaucrats. Very few policy analysts support family allowances and almost none support child tax deductions. But heavy water production is maintained and a new colliery is built in Cape Breton, the regional grants program expands, family allowances and child tax deductions continue. Social scientists must be realistic, then, about the impact of analysis on outcomes, and not expect to control the process, only to advise it.

2. Expectations for Social Science

Anyone who has taken, let alone taught, a first-year undergraduate class in the social sciences will already be heartily sick of the question: "Is social science a science?" This paper will avoid that question as both tedious and irrelevant.

But whether the disciplines of social science qualify for that description or not, policy makers need a realistic expectation of what can be gained from them. What cannot be gained is any kind of theoretical framework that will lead infallibly to the correct recommendations to feed into the social interaction from which policy is chosen. Aaron Wildavsky's description of social science as consisting of "innumerable discrete propositions of varying validity and uncertain applicability, occasionally touching but not necessarily related, like beads on a string" seems harsh but is probably appropriate.

It is fashionable to attribute this frailty of social science to its newness and perhaps to the low level of funding it receives. That is an unrealistic assessment. While it can provide a series of fairly solid statements about the aggregate behaviour of large bodies of individuals (voters, consumers, taxpayers), it cannot predict the specific behaviour of individuals or small groups in response to manipulations of policy variables. No physical scientist would attempt to predict the exact behaviour of an individual atom or a very small number of them. Small numbers of events, or particles, or individuals are the enemy of useful prediction and that generalization seems equally applicable in natural or social sciences.

If social science cannot make specific predictions, what can it do? It can make statements of tendency for small groups and relatively accurate predictions of the distribution of behaviour in very large groups from research based on random samples. But to sell social science (or any science) as likely to do better than that is to risk disappointment and criticism.

All of this suggests a good deal of humility in making claims about the potential efficacy of the social sciences. In particular, social scientists should be very careful about the problems on which they offer help. Problems must be defined by their solutions. The literature of social and natural science methodology abounds with similar comments. Melvin Webster and Horts Rittle state: "the information needed to understand the problem depends on one's idea for solving it ... the problem cannot be defined until the solution has been found."[3] Jerome R. Ravetz, concerning natural science, points out: "only when there is some specification of the new conclusion to be drawn can we say that a problem exists."[4] Social scientists should proceed very carefully when they choose the problems to attack.

But not too carefully. For a start, underselling, particularly if social scientists want more research money, may be as bad as overselling. For another, social scientists must not be afraid to make mistakes; indeed in a sense they have to make them in order to learn. Karl Popper writes: "it is through the falsification of our suppositions that we actually get in touch with reality,"[5] and that, in effect, closes at least part of the methodological gap between policy and social science or natural science, for people can learn only by doing and evaluating.

The lesson is the same, then, with respect to expectations surrounding both social science and public policy. Expectations should be realistic, failures will be more numerous than successes, successes will create other problems, and, in the case of the social sciences at least, will not likely survive more refined testing.

Improvements

If it is a laudable and reasonable objective to "use intellect to aid interaction among people," why do attempts to do it so often fail? In part,

it stems from the state of our social science knowledge. But very often efforts are considered to fail because they are expected to determine the outcome of the social or political interaction; social scientists are often blamed for what they did not and could not be expected to do. The enigma, of course, is that in a pluralistic democracy, if scientific knowledge did predetermine policy outcomes, the purveyors of the knowledge would have to go, otherwise our democracy would really be a form of hierocracy. In this sense, it is probably better to be viewed as a relatively weak adviser than as a strong player, if knowledge is one's only base of legitimacy.

How then to improve the impact of the social sciences without running the risk of being beheaded because of perceived excessive influence?

The first component of improvement is probably to retain and, if possible, increase the level of non-directed research. If the definition of what is an attackable problem depends on having a solution in view, and if the utility of the social sciences depends on defining new problems and therefore new solutions, a very substantial part of the social science effort ought to be spent in looking around the world to find those solutions.

A second component of improvement, one that may seem surprising in view of the significant effort and poorly received results already emanating from it, is a continuing emphasis on evaluation, with more attention to outcomes than to internal processes. If people learn by making mistakes, they ought to be able to say what those mistakes are. They should also publish more of those results so others can learn too.

A third component of improvement may be to experiment with different ways of collecting and interpreting basic statistical data. If what people see depends on how and where they look and if the current state of knowledge is unsatisfactory, then considerable experimentation by our basic information collection agencies -- particularly Statistics Canada -- is warranted.

A fourth component of improvement is to recognize and build on strengths. The suggestion that policy research is gravely weakened in the federal government is exaggerated. While there may be some reduction in the number of social science researchers in the federal government, the numbers are certainly not represented accurately in the statistical summary prepared for this conference. Many former researchers have been promoted or reclassified but are still engaged in research. Many research workers have been decentralized and attached to line units in which their job classification may have changed, but they are still engaged in policy research. There remains a vast demand for policy analysis and the federal government is and will continue to be the major funder and consumer. It is both the best market to cultivate and the best source of data and of opportunities to conduct the type of evaluative-learning research suggested here.

A larger number of funding sources would be a welcome improvement but probably cannot be counted on. Instead, a further development of what has become in the last year or two an adept lobbying effort in support of existing agencies may be more rewarding. That lobbying should emphasize rational expectations, but it should not sell the utility of the social sciences short. As a society, Canadians want the social interactions that determine outcomes to be informed by as much knowledge about themselves as they can muster.

Finally, social scientists must develop thick skins and a powerful ability to argue their case because of what may be the governing paradox of the world in which they work. They must expect -- even hope -- constantly to be proven wrong in the world of policy, for they can only learn by taking chances and then evaluating outcomes and correcting errors. That may be a small problem in the scientific laboratory, but when the social and policy science laboratory is the real world of real people, failures are costly and have real human and political consequences. That must make social scientists prudent in their advice but it should not make them cowardly. It is the essential nature of the enterprise that if they seek to apply their knowledge, they will get little credit for it and lots of blame. But I hope that at least it will be possible to say that the world is better off with their efforts than it would be without them.

Notes

1. Aaron Wildavsky, Speaking the Truth to Power: The Art and Craft of Policy Analysis (Boston: Little, Brown and Co., 1979), 17.

2. Different authors phrase the distinction in different ways. Wildavsky speaks of intellectual cogitation (planning) versus social interaction, of which politics is one form. Graham Allison differentiates the rational actor (planning) model from organizational behaviour and organizational politics models which are different forms of politics. (Essence of Decision). Others may simply differentiate between advice and decision-making processes.

3. Horst Rittle and Melvin Webber, "Dilemmas in General Theory of Planning," Policy Sciences (1973).

4. Jerome R. Ravetz, Scientific Knowledge and its Social Problems, (New York: Oxford, 1971), 135.

5. Karl Popper, Objective Knowledge: An Evolutionary Approach, (New York: Oxford, 1972), 360-1.

PANEL 3: IMPEDIMENTS TO THE CREATION AND USE OF RESEARCH FOR SOCIAL PROBLEM SOLVING

Public Constituencies and Commitment: Overcoming Impediments to Relevant Research, Dr Robert Clarke, Canadian Centre for Policy Alternatives, Ottawa

From my discussions with the organizers of this conference, and having reviewed the agenda and materials prepared for it, I conclude that I was probably invited here to reiterate a theme. This theme is that if only social scientists had more money to do social science research, the field would not now be facing what has been referred to as a crisis. As I come from a small, chronically underfunded research institute, it would seem reasonable that I should make this point -- after all, the Canadian Centre for Policy Alternatives is run on a shoestring; very often we cannot even afford shoestrings.

I was asked to reflect on the issues raised by the conference. My reflections, however, do not lead me to the conclusion that the critical problem in policy-relevant social science is the absence of funds for research. Indeed, I am led almost to the opposite conclusion: that more public money to fund social scientific research as it is presently constituted might contribute little to the solution of social problems. Indeed, a large influx of funding at this stage might be counterproductive. What is called for instead is a re-evaluation of and a challenge to many of the current assumptions and attitudes of researchers.

One might conclude from an examination of this conference's agenda that the social science knowledge requirements of society are not being met at the moment, that we need more funding, and that, if we had these resources, we would have no trouble finding high-profile projects to keep us busy well past the year 2000. I do not believe this. In my view, the critical problems faced by Canadian social science, inasmuch as it tries to be relevant to public policy, have more to do with the way in which research is done, as well as the values, interests, perspectives, and commitment of researchers.

The social science that I want to see done, and that we at the Centre hope to contribute to in some small way, is a social science committed to understanding the conditions necessary for a fundamental transformation of Canadian society. We are committed to research that develops the themes of democratic control, public accountability, the reduction of inequality, and the right to meaningful employment. It is against these values and criteria that I measure the success of our present social science enterprise.

At the core of a number of impediments to the creation and use of social scientific knowledge is a fundamental problem. Some social scientists have difficulty defining and identifying their constituency, or they have chosen nonpublic constituencies; others, immersed in their work, have lost sight of their constituency. As a result, they have no constituency.

In my experience, decision makers in government and national organizations complain that social scientists (especially academics) make statements that they, the decision makers, regard as irresponsible. The reason is that researchers do not have a constituency. Researchers do not have to defend their conclusions and recommendations in the House of Commons or at a public convention, and their careers do not appear to depend on the relevance (or even the accuracy) of their findings. Furthermore, it seems that as soon as (or even before) a decision maker begins to understand the details of one research

report, another report comes along offering a different set of conclusions and recommendations that are contrary to those of the first. Whom should the decision makers believe, and how are they to decide what is right?

Let me illustrate the problem with the following example. In 1982 a detailed study by Bennett Harrison and Barry Bluestone (two highly respected American academic social scientists, one at the Massachusetts Institute of Technology and the other at Boston College) demonstrated that the proportion of high-paying blue-collar jobs in manufacturing is decreasing while the proportion of low-paying service-sector jobs is rising, posing a challenge to the working-class standard of living and creating, in the long run, a significant malaise in the political economy of North America. Their research findings link this process to the rise of the so-called high-tech or information economy, and they argue that industrial growth in this sector will not provide the basis for an equitable social and economic future.

Their work is rigorous, well documented, and has withstood the test of review and public scrutiny. The policy implications of their hypothesis have been widely debated both in the United States and Canada, and their work has generated many similar analyses of the Canadian situation and discussion among leaders and politicans about its pratical implications.

However, in the summer of 1984, another team of American economists connected with George Washington University's Centre for Social Policy Studies presented contrary findings. They argued that, although the working-class share of total earnings dropped between 1970 and 1982, the change was slight and was "hardly an indication of long-run malaise." They in turn argued that the future lies with high-tech.

The fact that two sets of researchers have come up with contradictory conclusions is hardly surprising. It is a typical part of a successful academic career pattern for social scientists to disagree with their colleagues. They do not get tenure and academic status by publishing articles that say, "Yes, I agree." But policy makers and political leaders with a constituency affected by these issues are left with a problem. Whom are they to believe, and how should they go about choosing a policy option?

In part, the decision makers' dilemma arises because researchers' assumptions are not clearly stated or well communicated. In jurisprudence the punishment fits the crime; in social science the conclusion fits the assumption. By and large, academic social scientists have not done a very good job of communicating this fact to the public. Nor have they done a good job of communicating their assumptions in particular projects; in some cases they have purposely obscured their assumptions.

Assumptions often follow from a clear definition of researchers' constituencies and the nature of their involvement with them. When economists go to work for the Royal Bank, their constituency is clearly defined, and the assumptions underlying the research will flow from that definition. Economists working in government also have clear assumptions. (Given the present state of things, they are probably not all that different from those of Royal Bank economists). But what of academic researchers working within the ivy-covered walls of a university -- what is their constituency? Perhaps more important, how should the constituency

be defined and how can researchers engage it?

I would argue that it is time to put the public back into public institutions and public research. By the public I mean particularly those segments of the population that are now excluded: workers, women, the poor, small farmers, Native people. These segments constitute the majority of the public, but they are now poorly served by public research. Clearly, some university research is of a basic or nonapplied character and may be judged by other standards; but for policy-relevant research done in public institutions, it is clearly the public who should be the constituency.

I do not know if irreparable damage has been done in this area, but I am concerned by what I see. We have been tremendously successful in shifting the resources of public social science research to serve the interests of Canada's business sector. Consider the following scenario.

Suppose Canada is in the midst of a depression induced by businesses and their governments. Financial resources to public institutions are cut (in the name of restraint, in the name of deficit reduction, or whatever), and the myth of "the private sector" as the engine of recovery is promulgated on all sides. Increasing efforts are made by academic social scientists to attract support from business by catering to "private-sector" issues, finding solutions to "business problems," and mystifying social phenomena on behalf of business interests. (The situation is not entirely hypothetical: the well-funded proponents of engineering, for example, have been doing this for years.)

This scenario illustrates a perversion of public institutions. Businesses and corporations have researchers of their own to look after their interests. The public (particularly the least powerful sections of the public) lack these resources to work on their behalf. They lack research knowledge that has been generated within a paradigm that reflects their interests and goals.

Canada needs institutions and processes that overcome the impediments to research in the interest of people. One of the barriers that needs to be breached is the manner in which social science researchers see themselves as separated or detached from the phenomena they are studying (they often seem to think that they are peering down from above). Many researchers consider themselves accountable solely to their peer group, that is, to other academic social scientists. Instead of subjecting their views to wide assessment, they value peer review, hide behind claims of "professional standards," and communicate with each other in obscure journals. The universities reward their work with status. There is virtually no reference to social accountability. It is appalling that, by the count of the Social Science Federation, there are 115 social science journals in Canada (few, if any, of which are financially self-sustaining), and not one widely circulated, readable, popular magazine presenting social science findings.

Social scientists frequently define their research problems within the boundaries of a so-called "discipline." The definition is often so narrow that the solution to the problem being examined lies outside their self-imposed "disciplinary" boundaries. This approach also encourages the kind of irresponsibility that alienates the public from social scientists and their research. If, when the public acts on social scientists' conclusions, it encounters an unexpected result, the social scientists explain it away by claiming that it belongs to

some other discipline. This practice often obscures how policy decisions should be made. For example, decisions to bring inflation down and to improve corporate profitability and power may neglect the costs of high unemployment. Because many mainstream economists argue that the issue of the social costs of unemployment lies outside their discipline, they can ignore it when making policy recommendations. This kind of approach breeds public confusion.

The creation of useful social science knowledge is impeded also by the widely held view that there is a single correct conclusion to be drawn from any social enquiry, and that this conclusion is unaffected by the ebb and flow of interests surrounding a particular social phenomenon. This view obscures the essentially value-based nature of the explanations of social science.

The institutional position of many academic social scientists makes it difficult for them to relate to the pragmatic issues faced by members of the public who could benefit from the knowledge the academics could help create. Further, these middle-class scholars do not have to live with the outcomes of their conclusions and recommendations. Milton Friedman's economic advice to Chile is a case in point. Although Friedman may have regarded the Chilean experience as an oustandingly successful example of the application of his monetarist theories, he did not have to live with the misery and repression that resulted when his proposals were applied. The same could be said of his disciples in Canada who took over the Bank of Canada and proceeded to impoverish home owners, workers, and the poor with their high-interest policies.

In societies in revolution, the responsibility of intellectuals to their society is often cast in stark terms. They either work for or against "the people." These are life and death questions; social scientists working in such societies have to make choices. Because of our wealth and stable political relations, Canadian social scientists have not been forced to make these decisions. But this does not excuse them from the responsibility of making a commitment.

Peter Berger has written about this problem in his book, The Pyramids of Sacrifice. He discusses the propensity of social scientists to use various Third World countries as a testing ground for whatever social science theory is in vogue at the time -- only to walk away from the problems when their theories do not work.

There are, of course, other problems of which we are well aware. Startlingly little progress has been made in solving them during the 15 years I have worked with public policy. Academic social science seems to have chronic difficulty producing results under the conditions of urgency that characterize immediate social problems. This difficulty arises because their constituency does not require such results. But workers being laid off at a plant want a solution to their immediate problems, not a promise that in 18 to 24 months they may have a report that will help them understand the conditions surrounding their current situation.

There is also the problem of the language and conceptual framework within which social science research is done. This is closely related to the question of serving a constituency. If researchers see their constituency as the peers with whom they can carry on in-group debates in obscure and esoteric language, it will be impossible for them to break out of this dilemma. I once had to deal with an academic author who was preparing a report for one of our publi-

cation series -- a series that has wide popular circulation. This author refused our editor's advice to substitute English equivalents for various Latin terms used in his report. He insisted that these terms were necessary for the conciseness of his argument. He argued further that the terms would be understood by readers in the field, and that if others did not know what they meant they could look them up in a dictionary. He prevailed. But readers do not look things up in dictionaries and, as a result, the very important ideas that he wanted to communicate have not had a wide circulation and have not had the impact on the general public they might have had.

The central question is that of engagement and constituency. Who is the research for, and how is the researcher involved and committed? How does the researcher find and relate to a widely popular constituency, and how are differing demands from the public mediated and decisions reached? Here I would like to say a few words about governments and parliaments as articulators of a constituency.

In its current form, the Canadian government clearly has difficulty articulating the public will. The opinion polls seem to indicate that, although the public likes some politicians better than others and some political parties better than others, it does not like governments very much. The recent federal election campaign saw the victorious party emphasizing that it would bring not good government but "good business" to government. Rather like the academic community I have been describing, government seems to have developed a momentum, a language, and a direction all its own. Its policies are often cut off from the popular will. Despite the presence within the government of a number of what might be called advocacy centres, government research continues to lose touch with popular concerns and fails to find answers that are in the interest of broad segments of the Canadian population.

The population seems to have little faith in democratically elected governments; indeed, in this time of economic and social crisis, people have so little faith in open democratic public institutions, institutions in which they should be able to participate in decision making, that they are prepared to give the private sector the responsibility of solving public problems. This is true despite the fact that the private sector's secrecy, undemocratic character, and concern for profit rather than the public good are well known and acknowledged. This tendency (as reflected in the last election) seems to be an eloquent commentary on the public's desperation.

It is becoming increasingly clear even to the casual observer that many established public institutions do not work in their present form and in the current situation. The federal and provincial governments, their parliaments, and their bureaucracies are not considered by ordinary Canadians to be institutions over which they have much control or that affect their daily lives in any positive way. The problem is how to reintegrate ordinary people into the system of public decision making, how to give them a role in the planning and implementation of public policy. The current vogue for consultation is a false start. Instead, Canadians need to find methods and institutions designed to empower people to take charge of the public institutions that affect their lives and ways to assist members of the public who are now excluded from decision making to understand the public issues that affect them. These issues require research and knowledge. More importantly, information about the issues must be disseminated in a language and in formats that are

accessible to the public. Of course, to achieve the greatest possible benefits from this knowledge, priority must be given to obtaining the social transformations that I spoke of at the outset of this paper.

Conclusion

The greatest impediment to the social relevance of social science research in Canada is the reluctance of researchers to choose a constituency, to make clear recommendations, to obtain engagements, to span disciplinary boundaries, and to assume responsibility for their work.

Does this mean that social science really cannot be very useful for solving social problems? Most emphatically not. Decisions will be made with or without social science research. However, the better informed that decision-making process is, the more empowered will be those who participate in it -- as long as they have access to the information resources in a form they can use.

We at the Canadian Centre for Policy Alternatives have tried to address some of these problems. We have carefully delimited our constituency of popular organizations, trade unions, women's groups, and community groups. Representatives of these constituencies are directly involved in all facets of the production and dissemination of knowledge at the Centre. Constituents sit on our council (which sets the Centre's general policy direction) and on the research committee; they work directly with each research working group, review research findings, and assist in the preparation of reports, popular booklets, video programs, and other Centre materials. We are committed to engagement, to making our assumptions explicit, to ignoring disciplinary boundaries, and to being responsible to our constituency. We try to work fast and write clearly. We have had successes and failures, but we have continued to work in a reciprocal relationship with our constituents, providing them with information they require. We have always learned a great deal from them, and we consider that our social science is substantially better because of what we have learned.

Impediments to the Creation and Use of Research for Social Problem Solving, J. Peter Meekison, Vice-President (Academic), University of Alberta

The topic of this conference is timely and of great importance. There is no doubt that the social sciences and social scientists have contributed greatly to our knowledge and understanding of Canada. Perhaps the central questions to be addressed are, "Can they do more?" and "Can they do it better?" In preparing these brief comments, my views have been shaped to a considerable extent by my personal experiences over the past 10 years, the last seven and a half of which were spent as deputy minister of federal and intergovernmental affairs for the province of Alberta.

The conference organizers have posed a series of questions to this panel. Before I deal with these questions, let me first outline what I believe to be the fundamental dilemma facing the social sciences. A comparison with medical science provides some insights. Scientists throughout the world spend countless hours searching for cures for various diseases. In some instances they have been successful, as in the case of smallpox and polio. With respect to cancer and heart disease, basic and clinical research have led to a greater understanding of causality, early detection, preventive measures, and more frequent cures. The incidence of these diseases has been reduced, but not eliminated. But the fact that total success has eluded researchers has not terminated support for their work, funding for which is provided by public and private donations.

What lesson can be learned here by the social scientist? With regard to the health and natural sciences, the government and the public that elects it seem willing to accept the fact that it takes time to develop cures and provide answers. While the public may want a solution, it is sufficiently astute to know that although breakthroughs are made, they are also rare. The same degree of generosity is not so apparent in the public's attitude toward the social sciences. To unemployed youth, the economy is something that needs to be corrected immediately. They feel economists should be able to find the "magic bullet." People are prepared to wait for solutions in the physical and health sciences because they believe, either as a matter of faith or because it has been empirically demonstrated to them over time, that solutions are possible. But they do not have the same outlook with respect to the social sciences. Social scientists can often explain the cause of a problem, and they frequently propose solutions, but developing "the" solution is not an easy task. You cannot inoculate people against unemployment. In other words, the public does not appear to understand the role of the social scientist.

Let me now return to the questions posed to this panel: "What are the impediments to the creation of research for solving social problems?" and "Do the social sciences have the means, the method, and the theory to solve these problems?"

In my opinion, the main impediment to socially relevant research is the high level of expectation on the part of the public about the efficacy of the social sciences. In the 1950s and 1960s, social scientists were revered. It was widely believed and expected that they would cure most of society's ills. When unemployment, inflation, high interest rates, and juvenile delinquency continued or increased, the lustre of the social sciences began to fade. The statements

made by social scientists appear to lack the finality of statements coming from the natural sciences. Take economics, for example. No-one can predict with absolute confidence the direction interest rates will take. There is no firm agreement on how the public debt should be managed, or even if it is too large. Polling is another example. We have been bombarded with the results of countless polls over the past few months, some of which were reported to have methodological problems and all of which claimed accuracy only 19 out of 20 times. Would people buy and use a drug that had this kind of success rate?

The social scientists' dilemma is that the problems they deal with do not lend themselves to immediate or definitive solutions. Their success rate is not sufficiently high to have produced in the government and public's mind the confidence that is exhibited toward the natural sciences. There have been improvements in testing, forecasting, and modelling, but many social problems remain unsolved, or have been resolved only to be replaced by more complex problems.

The social sciences themselves are partly responsible for this crisis of confidence. Social scientists tend to develop grand theories on the basis of very limited empirical research and data. Many theories are never adequately tested and retested before they become transformed into pseudo-scientific laws. As a consequence, follow-up studies are often based on a questionable foundation. What is all too often presented as scientific fact is in reality the product of a single study. What needs to be kept in mind is that the conclusions from one case study do not necessarily explain all similar phenomena. (In my view, this is one of the fundamental differences between the physical and the social sciences.) In other cases, social scientists become preoccupied with methodology and pay scant attention to the purpose of the research. Clearly, a balance between the two is needed.

The second set of questions that have been posed to the panel are these: "What are the impediments to the use of social science research? Are decision makers and the public aware of what information is available or useful? Have users adopted the right approach to using the results of social science research?"

I have already touched on these issues in my earlier remarks. My impression is that decision makers are not as aware of research findings as they might be. A lot of social science research finds its way into learned journals that few decision makers are aware of or have time to read. Some of it, commissioned research, finds its way into various sponsoring government departments. Unfortunately, much of this material is never published or, when it is, it is often already out of date.

An important source of information for decision makers is the newspaper. Individuals may be very aware of issues in their own area of specialization but totally unaware of developments in other fields. It is from the newspapers that they often learn of a particular report, such as a study on energy by the Institute for Research on Public Policy (IRPP), a report on the economy by the C.D. Howe Institute, or a study of Canadian industry by the Science Council of Canada.

An example may illustrate this point. The Macdonald Royal Commission published its preliminary report in the spring of 1984. At the same time, it published its research program. The former was widely discussed and criticized, but the latter, which presumably will be a major determinant in shaping the final report, received scant

attention except from a few people who follow the Commission's activities. The research studies, however, are being prepared by some of the most knowledgeable and experienced people available. Because the research program received little comment, decision makers may well remain largely unaware of it.

With the decline of the academic job market during the past few years, governments have increasingly absorbed more and more graduates from master's and PhD programs, graduates who are equipped to do research applying the latest theories and methodologies. Indeed, given their ability to undertake research and their tendency to build a network of contacts in their field, these graduates will play an important role in interpreting and refining the results of basic social science research for decision makers. They will also be in a position to identify and develop areas where further research is needed. The net result is that decision makers should be better informed. Will these highly trained specialists replace nongovernment researchers? It is highly unlikely, but their presence in government should lead to more effective government-sponsored research because they will be better able to evaluate needs, proposals, and results.

The third question posed by the conference organizers is this: "How could social science research be better conceived and organized, and how could its findings be better disseminated for public use?" One difficulty social scientists have in structuring their research is that the kinds of problems they deal with (abortion, for example) rarely have right or wrong answers. Another is that, although social problems can be readily identified, finding solutions to them may take longer than either governments or the public are willing to wait.

The belief on the part of government that solutions to problems can and must be found in a fixed period of time -- that results must be produced -- is perhaps one of the greatest obstacles to developing effective social science research. To be sure, expert opinion can be given, quick surveys can be conducted, "think pieces" can be written -- but these are not substitutes for the scientific gathering and careful assessment of information. Although similar pressures may be applied to the natural sciences, the fact remains that these disciplines rarely have to work to deadlines to produce results. Scientists may be eager to find energy substitutes or a cure for the common cold, but the political pressure on them to do so in a fixed period of time is not as great as it is on social scientists to find a solution to unemployment. In the physical and health sciences, it seems to be enough that the public be aware that governments are supporting research to find solutions to problems. Provided that governments do not appear to be wasting money, the production of immediate results is not necessary for their political survival.

The problem of time is a difficult one to come to grips with. Research can be aided by massive injections of funds, but time is usually in short supply. Politicians have a limited amount of time to reach their objectives -- say, four years. If a needed medical breakthrough was to become a political issue, it too would be under the gun. How many medical researchers would be prepared to tackle a problem under such constraints? Unfortunately, in many instances, the results of social science research are needed in a few months. Sometimes, they are needed to fit into the government's legislative schedule, for purposes of program planning or the preparation of estimates. This type of pressure may have unfortunate

consequences for the quality of the researchers' work.

Contract research, while it is not subject to peer review, is nevertheless subject to the scrutiny of the government contractor. It should not be forgotten that there is considerable expertise within government. Governments know if they received fair value for their money; commissioned research that arrives late represents poor value. Unfortunately, the material that politicians sometimes receive does not reflect well on the researcher or on the discipline he or she represents.

One thing that stands in the way of the effective use of social science research is the use of jargon. Although every discipline has its own particular terminology, the average article in most learned social science journals is incomprehensible to all but a few initiates. Although this may be a satisfactory state of affairs to the practitioners of the art, it frequently means that the material in question needs to be translated into plain English or French before its utility can be assessed. To most intelligent laymen, jargon is an irritant that causes them to question the validity of the material they are reading.

Developing acceptable solutions to social problems involves researchers, governments, politicians, and the public. To have any chance of success, proposed solutions must be understood. Doctors can often get away with using obscure medical terminology. Although this practice may be annoying, some people take comfort in the fact that their particular malady has a Latin or Greek name. Social scientists cannot afford such luxuries. Listen carefully to the words our elected leaders use. They avoid jargon at all costs. Social scientists, on the other hand, seem puzzled when the public shows signs of not having heard or understood their messages.

Along with a number of other people, I was recently invited to comment on a proposed research project on energy and public policy. Parts of the proposal were not clearly defined. The language and the assumptions used by the investigators were on occasion ambiguous. The members of the evaluating committee who were not social scientists quickly became frustrated in their attempt to discuss the proposal and assess its validity. The committee members eventually gave up and began discussing instead the inability of researchers to communicate with one another.

As a political scientist with an interest in the federal system of government, I was able to bring to the deputy minister's position some expert knowledge of comparative federalism, the Canadian constitution, and parliamentary government. Throughout my time with the government, I was constantly forced to reconsider and re-evaluate the literature on and theories about Canadian federalism, including the terms used to express those theories. Take for example the term "the provinces." This term is widely used, but in some instances it may be totally misleading. One thing I learned on the job is that "the provinces" are all different, and that the differences between them are often more significant than the similarities. The point is that, if their work is to be meaningful and useful, political scientists and social scientists alike must ensure that the terms they use are appropriate and as clearly defined as possible.

There is no doubt that social scientists have expert knowledge, whether it concerns the Charter of Rights, child abuse, or archaeological sites. The important task is to bridge

the gap between theory and practice. That is the principal challenge to the social scientist. (In the physical sciences this bridging would be called technology transfer.) Meeting that challenge will not be easy. It will take time, patience, and mutual respect between politicians and social scientists. For one thing, social scientists must recognize the fact that policy makers already possess some information. Also, they often have some idea of how they do or do not wish to remedy a situation (not by increasing taxation, say). They probably also know their desired result (to reduce unemployment, for example). Regrettably, many people doing research for government assume that both the bureaucrats and the politicians have limited knowledge and ability. My own experience suggests that the contrary is true.

An important issue in current discussions about the social sciences is the link between researchers and decision makers. Researchers normally analyse data to identify a trend, draw a conclusion, and formulate a recommendation. In the case of contract research, however, the conclusion is sometimes predetermined by the contractor; the research requested is designed to justify an earlier decision. This places the researcher in a difficult position if his or her findings are contrary to those expected. Independent, objective inquiry may thus be jeopardized. I was recently reminded of this dilemma when one of my colleagues at the university informed me that on the Edmonton annexation issue "none of the consultants used [by the various municipalities] made recommendations out of accord with the views of their employers."

There are other many impediments to the creation of research for solving problems, but I will mention only a few of them. They include the availability and adequacy of financial support; the availability of trained personnel; the lack of agreement about disciplinary boundaries; the way in which the social sciences are organized; and the lack of agreement on what research should receive public funding.

In conclusion, I would like to provide a final comment based on my own experience. Working in intergovernmental affairs made me realize that much of what could be described as theory about the federal system required constant reassessment and refinement. At the same time, I realize that no matter how objective I was, it was difficult for me to be an impartial critic of my own work.

What I believe is needed are more opportunities to assess theory and practice simultaneously. Such exchanges might lead to new theories as well as explanations and modifications to existing policies when necessary. One of the most stimulating exercises I have been engaged in recently is a small seminar between some of the research staff of the Macdonald Royal Commission and a few practitioners of federal-provincial relations. It has been mutually beneficial. The idea might be carried over into many areas of social science. Professional meetings provide one forum in which ideas and views can be exchanged between practitioners and theorists. Other alternatives are workshops or seminars sponsored by research institutes such as IRPP. Seminars and workshops could help social scientists meet the most important challenge facing them today — to present research findings in a way that is understandable to those who must apply them.

Obstacles to the Creation and Use of Knowledge Produced by the Social Sciences to Solve Social Problems, Guy Rocher, Centre de recherche en droit public

I am by profession and first love an academic. The university is my natural environment; I have taught and conducted research for more than 30 years. But I have not spent all my time at the university. At various times I have had to leave the university, either partly or totally, to sit on commissions of inquiry or boards of public or para-public organizations, or to take up positions in the public service. This alternation between university and various outside positions has not allowed me to conduct all the research or publish all the papers that I would have liked to. Nevertheless, it has had compensations. I have had the experience of being a researcher -- whether on my own or as a member or a leader of a team -- as well as a user and an assessor of social science research, primarily for socio-political or cultural purposes. Having observed the exercise of political power and participated in it, I am able to view from another perspective social science research and those of my colleagues who are involved in it.

By drawing on my experience as a researcher and as a user of social science research, I have attempted to formulate a response to the subject of this workshop. Having sat on both sides of the table, I have often questioned the little and often poor use made of social science research by decision makers and tried to find a solution to the problem. Of course there is no single solution; a variety of approaches is necessary.

The Idols of Francis Bacon

To assist me in my reflections, I turned to an author whom I occasionally like to read, Francis Bacon. In his time, Bacon examined the obstacles to the creation of science and independent research. At the beginning of the 17th century, the obstacles stemmed primarily from the rigid and dogmatic way of thinking that had been inherited from the Middle Ages. But despite the difference in time and situation, Bacon's thoughts can still serve as a useful model for looking at 20th century problems.

More than 350 years later, academics are still posing the same questions as Bacon: how to combine science and action; how to apply the knowledge acquired by research to decision making and carrying out decisions; how to make social science research useful to society; how to free science from impediments to its development.

Bacon identified four obstacles to independent research and its use, which he termed the four idols or fallacies of the mind. I would like to use this framework to discuss the four modern obstacles to the creation and use of social science research.

The "idola tribus": The fallacies of the tribe

What public image does the tribe of social scientists have? I have often noted that administrators (except for the rare few who have a positive image of social science) generally hold one of two differing views: either they see social science as a threat, and social scientists as iconoclasts out to undermine the established order and the basic values of society, or social science research appears insignificant and of no real interest, merely confirming what is "simple good sense."

The first image poses a fundamental and troubling problem, namely, the relationship between social science research and power in all its forms.

Social science researchers have a duty to perform a critical, demystifying function. (I am using critical in its noblest sense.) Social science researchers must tear away the veil of illusions, false securities, half-truths, and false awareness; they must reveal the fragility of values, doctrines, and commonly accepted truths.

This is undoubtedly true of those who draw their inspiration from "radical" thinking. But it can be equally true of others who are also radicals without claiming to be so. This latter group is particularly worrisome for administrators who do not usually address themselves to the first group, knowing what to expect, but are often embarrassed by the conclusions of the second group. For example, a number of studies requested by commissions of inquiry or reports published by the Economic Council of Canada have perturbed politicians and senior officials in this way.

There is no real solution to this problem, for it is the nature of social science research to have and maintain this critical function. It is not a coincidence that social science research does not flourish in totalitarian societies, whether they are right or left-wing. But if there is no solution, there is at least something that can be done. Organizations such as the Science Council of Canada or the Social Sciences and Humanities Research Council of Canada should organize regular meetings (conferences, seminars, or workshops) to bring together decision makers and researchers to discuss topics of social significance. Researchers would gain by having their critical viewpoint subjected to the criticism of administrators, and administrators would gain from being confronted by a critical viewpoint.

The "idola specus": The fallacies of the cave

Using the terminology of Bacon, I consider the cave to be the intellectual colonialism of Canadian social science research. The result of this is a general lack of originality. Canadians have borrowed models, theories, and concepts from abroad (mainly the United States and France) and used them as already proven tools for their research. They have tagged along behind their old professors and mentors. Canadian social sciences have not contributed anything of great importance to the theories of the social science disciplines. No Canadian is ever cited among the great authors who have left their mark on the development of the social sciences.

In my opinion this raises a problem of legitimacy. The status of academics and researchers places social scientists among the intellectual elite. But is there not some sort of false representation in this? Are social scientists not illegitimate intellectuals who do not really supply what a society expects of its intelligentsia?

This is perhaps a reason why social science research has the reputation of being insignificant. It lacks depth, scope, and intellectual inspiration. It is pedestrian. It is not surprising that decision makers have little confidence in such research.

Social scientists complain that they are currently experiencing lean times. They should take advantage of this situation to produce more in-depth work and to undertake studies that require development, reading, and meditation. I stress this last term, which dictionaries define as "deep reflection on a subject." As a general rule, the social sciences are not "meditative" in Canada.

When there is a shortage of funds for research, social scientists turn

inward and examine their disciplines. (Is that not what this conference is supposed to do?) Social scientists must take advantage of this lean period to bring some reflection, with a renewed intellectual commitment, to our social purpose and not just to the social sciences as subjects of study.

The "idola theatri": The fallacies of the theatre

In the Canadian social sciences, there are many actors, but too few theatres. By that I mean that Canada lacks a social science research infrastructure. I would, however, like to praise an important institution: the Canadian Register of Social Science Research and Researchers, produced by the Social Science Computing Laboratory of the University of Western Ontario. Thanks to this register, Canadians have easy access to a computer-based information system on all social science research undertaken in Canada. This register is compensating for the isolation and for the fragmentation of social science research.

But I would also like to see the development of a dynamic infrastructure. When I was at the Canada Council (at the time it administered the social science programs), I made a proposal that, although it was not retained, is one that I continue to believe in. Canada should have a centre for social science research where, each year, a number of researchers could be brought together. The centre would provide office space, accommodation, access to a university library and a computing centre, and contacts with other colleagues. Such a facility might not be of service to researchers who head teams of assistants in their universities or elsewhere. However, it could bring together, for example, Canadian and foreign researchers who want to write books or articles or whose research does not require a team.

This centre could also be used for special meetings and conferences, to bring together researchers working on similar projects or themes. Canadian social scientists have few opportunities for in-depth exchanges, which are not possible at the annual meetings of the learned societies. I am convinced that, after a few years, such a centre for research and exchange would bear abundant and high-quality fruit and would have a dynamic effect on the social science research community. In the United States, a large number of important works have been published thanks to centres such as the Research Centre for Behavioral Sciences at Stanford University, which Canada could use as a model.

The "idola fori": The fallacies of the marketplace

The relations among researchers, decision makers, and the information media (primarily newspapers and popular magazines) present a problem that too often goes unrecognized. I have often noticed that those who read newspapers the most carefully are politicians and senior officials. They sometimes study several a day and even read the editorials, a fact that explains why they are the greatest critics of the press and why they do not miss an opportunity to accuse newspapers of the troubles that beset them. At the same time, however, these decision makers are influenced by the press, whether consciously or not. Many of their attitudes and decisions can be explained by their regular association with the media.

Social science research is given practically no space whatsoever in newspapers or popular magazines. There is no section equivalent to those devoted to literature, arts, sports and recreation, business, politics, or women. When a social study is summarized in a newspaper, the author of the research rarely feels that he or she was done justice.

This is partly because the media are not at all convinced of the interest their readers have in the conclusions of social science research. It also stems from the fact that the majority of social science researchers write for their peers and not for the general public. Those who happen to write for a large public are commonly thought to be jeopardizing their academic careers and their promotion prospects. Researchers are believed to be incapable of writing simply and for everybody.

This belief sometimes has unfortunate consequences. Of the many meetings in which I participated while in the public service, I remember one in particular that brought together a number of politicians and senior officials to make a particular decision. A photocopy of an article that had recently appeared in a popular magazine was being circulated round the table. The author claimed to have researched the subject. In fact, he had superficially questioned a few individuals and had published an article that was full of biases and approximations. Yet in the departmental files there were a number of very good studies on the subject, but no-one at the table had had either the time or the inclination to read them because they were several hundreds of pages long and had numerous tables and graphs. The decision was made without taking these studies into account. I am relating this one particular incident -- there are no doubt hundreds of similar ones -- because it illustrates in my eyes the relations that exist between decision makers, the information media, and social science researchers.

I can think of two other incidents that involve relations between the press and researchers. At the outset of the 1970s, a Quebec newspaper had financed, together with some other organizations, a study on Quebec that a pseudo-sociologist from France had managed to sell to them because he came from abroad and had a talent for writing. His report was not worth the paper on which it was written. A journalist who was given the task of summarizing it realized this. She wanted to add a caution to the reader on the superficiality of the observations and conclusions of the study. Management objected to the cautionary statement and refused to publish it because the newspaper had funded the study. The journalist filed a grievance, which she won after several weeks. In the meantime, the highly dubious conclusions of the pseudo-study had been printed. The decision on the grievance was rendered too late to change anything.

A few years ago, the Quebec govern- ment refused to appoint as director of a major university institution in Quebec the candidate proposed by the board of directors of the institution. Instead they appointed a professor of the institution as director. The new director was discovered to be an active and known supporter of the party in power. A Quebec City newspaper seized on the act and published an extremely bitter editorial that denounced the appointment as an arbitrary act of patronage on the part of the government. The paper had not first taken the trouble to ask a few professors in the institution about the facts of the matter. It was necessary for a group of professors at the institution to issue a statement explaining that the new director was the choice of a large majority of the professors -- a choice that the board of directors had not wanted to confirm. The management of the newspaper thought they had embarrassed the government; in reality, those most embarrassed were the editorial writer, who had to retract his accusation, and the directors of the institution, who had an internal conflict between itself and the teaching body aired in public.

I have recounted these three incidents to draw three conclusions, in the form of a classical scholastic syllogism.

1. Researchers and the universities in general have almost no relations with the information media. This situation is the fault both of the media and of the researchers.

2. Because decision makers read more newspapers and magazines than lengthy research reports, they know very little about social science studies and are uninformed about those they are familiar with.

3. Consequently, to reach decision makers and the public, the knowledge derived from social science research must pass through not only learned journals, but also through the information media.

The solution is simple, but its application is not. Few social scientists know how to write for newspapers and popular magazines. They do not think like journalists, nor do they write like them. Journalism is a speciality, a profession. Consequently, I suggest that organizations such as the Science Council of Canada and the Social Sciences and Humanities Research Council take steps to create a group of information officers (or popularizers, if the term is not pejorative) for social science research. Such persons would be specialists in social sciences and humanities who do not wish to become researchers themselves, but who can summarize and translate faithfully social science research for the information media. I believe that specialists of this sort could find niches in the newspapers, the magazines, the electronic media, and the public relations offices of universities and various industries. Who knows? They might even find jobs with the Science Council of Canada or the Social Sciences and Humanities Research Council.

Conclusion

To Bacon's four idols or fallacies I would like to add a fifth. In my opinion, the greatest obstacle Canada is facing and will continue to face concerning the use of social science research lies in the poor analyses done by politicians and administrators (both public and private) of crises and solutions to crises. To give an example: with the current recession in which economic problems have become international in scope and in which each country is expected to produce breakthroughs and penetrate world markets, the myth of new technologies has spread and become solidly entrenched.

I argue that this is a myth because new technologies will not by themselves or by their own virtues pull the economy out of the recession. Technology is more than a technical product, it is a social product as well. Scientific and technological innovation, as well as the diffusion and adaptation of new technologies, happens through and with social organizations (laboratories, industries, educational institutions, and so forth) equipped with their own set of regulations concerning their life and functions. The acceptability of science and technology is not self-evident. New technologies are not to be neglected; the social, cultural, and economic conditions of their diffusion and adoption should not be neglected either. Ignoring the socio-cultural dimensions of the new technologies may jeopardize Canada's ability to implement the "technological mutation" or may delay it or slow it down.

It is within this context that social research aimed at understanding the complex and varied relationships between science, technology, and society

becomes essential. However, this function of the social sciences does not seem now to be thoroughly identified or considered as essential. It is our responsibility as social scientists to convince decision makers to do something about it.

Impediments to the Creation and Use of Research for Social Problem Solving: A Perspective From Anthropology and Native Studies, Sally M. Weaver, Department of Anthropology, University of Waterloo

My research on federal policy-making processes for and with Indian and Métis peoples in Canada has given me a particular perspective on the creation and use of research for social problem solving. Although my experience is not typical of my discipline's extensive contribution to knowledge, it may shed some light on the government's attitude toward and use of social science.

In the past decade, anthropologists in Canada have generated knowledge directly for or on behalf of Aboriginal groups in the land claims process and in the field of social services. Hence the primary direct users of this knowledge have been Aboriginal groups. These groups had contacted social scientists who were known through their independent research in Indian and Métis communities. Some of this research has been published to the benefit of Aboriginal people, governments, and the social science community.[1] In addition, Aboriginal organizations, through land claims research funded by government (mainly the Department of Indian Affairs and Northern Development), have undertaken research on their own history, enabling them "to know themselves better."

In general, however, the federal government departments that deal with Aboriginal peoples have not generated or used social science knowledge about Aboriginal peoples. A few examples of knowledge generated stand out boldly: the Hawthorn report on Indian socio-economic conditions in the mid-1960s,[2] reports of the Department of Indian Affairs and Northern Development's policy research and evaluation unit, and the Department's survey of Indian conditions.[3] Some contract research is undertaken, and although some of the reports are of good quality, many are of dubious conception, possibly because of the bureaucratic patronage of certain consultants. In-house research capacity in the departments is also limited. As a result there are few social scientists in government departments with whom university-based researchers can develop collegial relations or talk about potential research interests and needs in Aboriginal studies.

Impediments to the Creation of Social Science Knowledge for Solving Social Problems

Many obstacles hamper the creation and use of social science knowledge for problem solving by government. I will briefly identify what I believe are the more important ones.

1. Theories and Concepts

Theories of cultural change are central to policy-making efforts, but interest in the processes of cultural change (acculturation) which began in the late 1930s, diminished in the early 1960s. Hence there is little current, broadly-based empirical research in the field of cross-cultural change. Central concepts such as "culture" are also problematic, for they are often too global and too abused (inside and outside the discipline of anthropology) to be useful tools. Equally critical is the concept of "ethnicity," which is currently the subject of much debate in anthropology.[4] These concepts are not simply of academic interest; they are vital tools for clear thinking and for the epistemology of policy making. For example, I have heard senior officials in Ottawa and Canberra, searching for clarity and meaning in developing policies for indigenous minorities, ask:

Do Indian people still have Indian culture? or, What is Aboriginal "traditional culture"? One official went so far as to say that "the problem with the Métis is that they are a self-defining group." These remarks reflect conceptual confusion, not simply bureaucratic promulgation of the presence or absence of aboriginal ethnicity. Key concepts are imprecise and changing, lack rigour, and are not shared by the public.

2. Methodology

Cross-cultural research is fraught with problems of accurately discerning the cognitive and social systems of non-Western society. Such research requires lengthy fieldwork to produce reliable data. The conventional case study tools (participating, observing, and interviewing in the community) produce rich data: they allow the comparison of stated behaviour with actual behaviour and an understanding of the daily/seasonal/annual round of activities. However, these methods tend to be time-consuming, community-specific, idiosyncratic, and non-cumulative. Policy making requires nationally or at least regionally based data, and this is rare for Aboriginal peoples in Canada. In addition, although case study findings are often applicable beyond the community in which they are done, their applicability is often discernable only to other researchers who read the work and recognize similar patterns in communities in which they have worked. Similarities are not often identified in publications and are not drawn to the attention of decision makers and the public. Finally, the policy implications of the research are rarely identified, in part, because researchers are not policy-oriented, and in part because, even if they were, they have little influence on policy decisions.

3. Attitudes to Applied Research

Anthropologists have generally negative attitudes to applied research despite the increase in applied work in the 1970s and despite attempts by some researchers to promote the utility of social science. Anthropology, possibly more than any other social science, is university-based, and therefore academic criteria dominate the production and dissemination of social science knowledge (that is, anthropological issues of theory, academic journals for publishing).

4. Relations with the Government

The relationship between anthropologists and the federal government tends to be adversarial. Anthropologists identify with the issues and interests of Aboriginal peoples and are sympathetic to different cultural perspectives in defining issues. They view past and present policies as misguided, uninformed by existing social science knowledge, and implemented by heavy-handed, self-serving public servants and ministers. The evidence of past policies[5] and the experiences of researchers working with Aboriginal organizations in their dealings with the bureaucracy have only cemented these attitudes. As a result of the distrust of government, it is not surprising that many social scientists are not inspired to generate research for government, or to view government officials with equanimity.

5. Frame of Reference

The frame of reference of many academics in anthropology has not until very recently been Canada. The influx of American anthropologists, strongly evident in the late 1960s during my own PhD training at the University of Toronto, became more pronounced in the early 1970s. These academics had little knowledge of Canadian political institutions and little interest in tackling Canadian issues. This has gradually changed as their involvement with Aboriginal organizations led them into fields of research that require some knowledge of the political-bureaucratic systems.

6. Consulting
Social scientists need adequate time to undertake research on social problems. Those who work closely with Aboriginal communities may sense problems to be studied well in advance of undertaking a study. The government, however, does not readily reveal the problems that it will tackle in the policy-making process, so unless researchers are adept at anticipating the winds of change in political priorities, they have no advance knowledge of what research is needed. They can do only "quick and dirty" consulting in the time allowed, which I believe is of limited utility in the long run to government officials in need of knowledge.

7. Research Time
If a university-based researcher selects a "topical" research subject, impediments may arise from the limited amount of research time available. Here I am thinking of two instances in my own work in which I sensed that both government officials and Indian leaders were not only interested in my research, but were also receptive to learning from my findings. These are what teachers refer to as "learning moments." These moments, if they existed, were lost because in both instances data collection consumed the four summer months, and I had to drop the analysis to return to teaching and university responsibilities. I deeply regretted this because the exchanges I had had with government officials and with Aboriginal leaders were invaluable to me and I could not stay to take advantage of them.

8. Access to Documentation
If one of the functions of social science knowledge is "to permit society to know itself," then research on how policies are formulated and on how social science knowledge is used, abused, or found wanting is essential. It can benefit government officials (by providing a corporate memory of past policy-making problems), social scientists (by a knowledge of how their work is treated), and Aboriginal peoples (by a knowledge of how their demands are received and interpreted). The single major impediment here is access to the relevant government documents.

I have found federal officials willing to grant interviews and provide their own views of the policy process. They have been helpful and generous with their time and interest. The impediment lies in the inability of researchers to get access to relevant documentation. This is a two-edged sword. In my experience the quality of knowledge about the policy process is diminished when access to key documentation is denied. This point has been vividly brought home to me in my own work when access to documentation permitted detailed analysis and lack of access prevented such analysis. Moreover, when a social scientist bases an analysis of a policy-making exercise on less than sound data, government officials, especially those involved, detect the weakness immediately and discredit the work and the researcher.

9. Comparative Data
The generation of comparative knowledge on indigenous people in other Western democracies (or other types of political systems) has been limited. This is in part due to Canadian parochialism, because policy makers do not look to other countries for models and experiences, and in part to the academic failure to initiate comparative research on policy development and indigenous peoples. I believe this situation is improving, and the Social Sciences and Humanities Research Council (SSHRC) has funded this type of research.

Comparative research is time-consuming. To be truly usable it requires matched studies in two or more countries, not simply research in one

country with loosely conceived notions about its applicability in another country. It is also expensive, but it is equally expensive to import mistakes or to repeat the mistakes of other countries in Canada when parallel conditions might have been identified and some of the pitfalls avoided. Finally, rigorous comparative research would allow us to question the grass-is-greener attitude toward policies in other countries, a view rarely based on informed analysis of the "greener" institutions.[6]

10. Knowledge of Aboriginal Local-Level Problems

If social science knowledge is to help us know ourselves better, it should apply as much to Aboriginal peoples as to other members of society. The generation of knowledge of practical local-level problems in Aboriginal communities was recently proposed to SSHRC as a strategic grant program. The SSHRC's uncertain treatment of this idea did not enhance the creation of knowledge. This is genuinely regrettable, for if Indian self-government, the current policy priority, is to take concrete form, the real-life problems facing these communities must be accurately understood and reliable knowledge must be available to inform the new policies. There is, for example, no systematic, nationally based, independent analysis of the problems facing Indian band councils and the Department of Indian Affairs and Northern Development in the operation of band governments in Canada. The proposed team approach, between social scientists and locally based Indian groups, is a constructive approach to generating this knowledge.

In regard to SSHRC's treatment of the strategic grant proposal on Aboriginal issues, I strongly recommend a halt to politically partisan appointments to SSHRC. Canada has many political arenas for defending federal Indian policies, and SSHRC need not be one of them. SSHRC ought to be dispassionately assessing basic research needs in this field.

Impediments to the Use of Social Science Knowledge for Solving Social Problems

I believe that the impediments to the government's use of social science in the field of Aboriginal peoples' affairs are great, in part because no historical convention exists for its use, and in part because decision makers rarely have any educational background in the disciplines that generate the knowledge. Despite these drawbacks, I have found that decision makers who are serious about solving a problem tend to be receptive to social science knowledge if it is available, relevant, and drawn to their attention. There are, however, forces within the decision-making process that militate against the use of relevant and reliable knowledge (disregarding for the moment the key question of who defines relevance). I will list these very briefly:

(1) The philosophy or ethos or set of values underlying a social science report may lead to its outright rejection.[7]

(2) Pre-emptive thinking by decision makers may lead social science knowledge to be disregarded because the decision makers have already decided on the definition of the problem and the options for solving it.

(3) Lack of government intent, despite rhetoric to the contrary, to solve a problem means that social science knowledge is not even sought; instead a strategy prevails of appearing to address the problem but in fact avoiding the substance of the issue.

(4) A policy-making process may be so newly instituted (such as the Ministry of State for Social Development, 1979-80) or so complicated that the chances of using social science knowledge diminish

because substantive issues are lost as policy actors struggle to sort out what is expected of them in line departments and in the central agencies.

(5) When government is uncertain about its directions (and perhaps has in force contradictory policies), yet is trying to sort out the confusion, its protective instinct (because of vulnerability to criticism) raises barriers to informal discussions with social scientists that might prove useful in clarifying assumptions, concepts, and options.

(6) A preoccupation with management considerations (forward plans, operational plans, strategic plans, and so forth) which leads to self-examination and causes the government to lose sight of the client and the problems, diminishes the chances of any social science input.

(7) Interpersonal and interagency conflict in policy making hardens attitudes toward the sponsors of social science knowledge.

All these factors have been operating against the consideration or use of social science knowledge in policy making in the past few years. Indeed, as the complexity of the central agency involvement in the policy-making process has increased, the substance of issues seemed to diminish under the weight of government machinery. Despite this fact, I am more sanguine about the future than perhaps my observations suggest.

What Changes Can Be Made to Improve the Creation and Use of Social Science Knowledge?

Some of the ideas I suggest below have already been initiated, and others would not be difficult to undertake. None are revolutionary.

(1) Dissemination of research results on Aboriginal peoples has improved dramatically in the past 10 years with the advent of new Canadian journals: Recherches amérindiennes au Québec, Culture (Canadian Ethnology Society), Canadian Journal of Native Studies, Journal of Canadian Studies and Canadian Public Policy. All of these carry articles on Aboriginal issues and identify researchers. Hence the literature on Canada is easier for potential users to monitor.

(2) Attitude changes, essential to any constructive relationship between social science producers and government consumers, could be induced if government officials were to initiate working seminars in which policy problems, early in their identification, could be discussed with social scientists. This would increase understanding by social scientists of the difficulties involved in policy issues and would give government officials a sense of the state of the art of knowledge in the disciplines.

(3) Secondments could lead to a mutual education process, give academics the opportunity to work on current problems in the context of government, and lead to fruitful exchanges that would sensitize social scientists to future research needs.

(4) Working papers could be a way of getting materials quickly disseminated. Either SSHRC in its research grants program or government departments might fund such pre-publication materials. Publication delay (two to three years for some journals) means that even if timely research is available, its dissemination is bound to be untimely.

(5) Government officials could make better use of academic conferences to make contact with social scientists and to hold workshops for discussing research needs and problems. This might reduce the mutual contempt of some officials and academics.

(6) An Aboriginal Peoples Research Institute, akin to the Australian Institute of Aboriginal Studies in Canberra, could be established to identify and promote research on urgent and timely topics in Aboriginal studies. This institute would maintain a first-class research library that would include published and unpublished materials and a news-clipping service (catalogued), circulate abstracts of publications and reports, and publish methodologically sound, policy-relevant works.

(7) Government and SSHRC financial support for joint social science/ Aboriginal peoples research is required. This is essential because the days in which academics could undertake research without the consent of Aboriginal communities are gone. Social scientists need the support and cooperation of the communities, and the communities need the research skills of the social scientists. This teamwork is clearly one of the major research strategies of the future, and the results of such research are bound to be more relevant to the problems that Aboriginal peoples face and hence ultimately to government.

These suggestions may seem naive and simplistic. But underlying them is my belief that there is common ground for the support and use of research among Aboriginal groups, social scientists, and government personnel. I also believe that one way of achieving this is to build interpersonal networks among these three groups of people, networks in which a sharing of research concerns can begin, where tolerance for each other's limitations can emerge, and where, in some cases, cooperation might develop. The product would be of greater utility to Aboriginal peoples and government and easier to sell within government and to the public because of the collective needs it would address.

Notes

1. See, for example, Harvey Feit, "The Income Security Program for Cree Hunters in Québec," in Aborigines, Land and Land Rights, Nicolas Peterson and Marcia Langton, editors (Canberra: Australian Institute of Aboriginal Studies, 1983), 439-454; Inuit, Tapirisat of Canada, Inuit Land Use and Occupancy Study (Ottawa: Department of Supply and Services, 1976), 3 volumes; Joe Sawchuck, Patricia Sawchuck, and Theresa Ferguson, Métis Land Rights in Alberta: A Political History (Edmonton: Métis Association of Alberta, 1981).

2. H.B. Hawthorn, A Survey of the Contemporary Indians of Canada: Economic, Political, Educational Needs and Policies (Ottawa: Queen's Printer, 1966-67), 2 volumes.

3. Department of Indian Affairs and Northern Development, Indian Conditions: A Survey (Ottawa, 1980).

4. Gerald Gold, editor, Images of Mother-Country (St. John's, Newfoundland: Memorial University, Institute of Social and Economic Research, 1984).

5. Sally M. Weaver, Making Canadian Indian Policy: The Hidden Agenda 1968-70 (Toronto: University of Toronto Press, 1981).

6. Sally M. Weaver, "Toward a Comparison of National Political Organizations of Indigenous Peoples: Australia, Canada and Norway," lecture series at the Institute of Social Sciences, University of Tromso, Tromso, Norway, October 19-26, 1983.

7. Sally M. Weaver, "The Life-Cycle of a Research Report: Lessons to be Learned from the Fate of the Hawthorn Report," paper read at the Western Association of Sociology and Anthropology's Conference on Social Science and Social Policy, Lethbridge, Alberta, March 2, 1979.

GUEST SPEAKER

Lorna R. Marsden, Senate of Canada, and Professor of Sociology, University of Toronto

Changing the Bathwater, Keeping the Baby

In my invitation to this conference, I was asked to "reflect on the relationships between the production of social science research and the requirements of society for social science knowledge, and, in particular, the problems faced by women in a changing world of work." In this I was much encouraged by André Raynauld's presentation, in which he said, "If catastrophes do occur, they will have to be blamed on man's ignorance or behaviours." There are three aspects of the question that I propose to develop for your consideration, some of which were touched upon by John Trent's background paper, Social Science Research in Canada: Stagnation or Regeneration.

Producers and Consumers of Social Science Research

The first is the relationship between the producers and consumers of social science knowledge. Professor Trent states that the social scientist's contribution to the understanding of social change depends on an "informed and tolerant public and knowledgeable decision makers." I accept the distinction between informing the public and influencing the agenda of the decision makers as roles for the social sciences. It is about the former, popular understanding, that I want to talk. I contend that in Canada we do not have a large middle class able and willing to consume the findings of social scientists (or humanists), except in certain highly specialized areas. Neither the composition of our population nor the way in which social science research is presented in the popular press is conducive to this. For example, is there a Canadian economist (or an economist of any nationality) writing directly about Canada, whose works have been widely read by the majority of Canadians? Is there a Canadian economist whose name is a household word? Is there a Canadian economist whose face would be generally recognized by the audience of Canada A.M. or The National? I have no data of any kind on this question, but I do not believe that there is one. In Britain, France, or the United States, however, the situation is quite different. As Professor Weaver has commented, it does not seem to be part of Canadian culture to debate public issues between university people and people in other walks of life (such as public servants). Yet social science is "our baby." We are proud of our work, but concerned about the lack of an admiring audience.

There are fields in which this is not true. Pierre Berton has popularized Canadian history among English-speaking Canadians, and I believe all historians gain some popular recognition among the interested public in Canada because of his work. In the field of literature, I think that Margaret Atwood and Gabrielle Roy would be recognized, and there are other well-known names in other fields. But psychologists, anthropologists, or sociologists who do research on Canadian peoples and societies are not popularly known. Canadians know more about the psychology, anthropology, or sociology of other cultures and societies, principally the United States, than they do of their own country.

To answer the question of why things should be different in Canada, one must examine the nature of the environment in which we want our "baby" to grow. What about the audience? One of the most encouraging statistics provided in the background paper prepared by the Social Science Federation of Canada is the increasing number of undergraduates in the social sciences. (It is even more

encouraging to note that women constitute over half the undergraduate students in many of Canada's largest universities, including the University of Toronto.) Students in any social science will become familiar with some of the basic concepts used by all the social sciences. Moreover, these days engineers, medical students, and science students often take at least an introductory course in the social sciences and are therefore familiar with basic concepts in the field. Widespread knowledge of such concepts is a necessary condition for the development of a critical dialogue with a broad audience of Canadians, but Canada is only now beginning to have a large number of citizens with postsecondary education of any kind.

Canada is still a country with a high rate of illiteracy by the standards of the developed, industrialized world. In 1981 among Canadians of 15 years of age and older, about 20 per cent had less than a Grade 9 education. (Grade 9 education is taken to be the level defining the difference between the ability to enter most skilled jobs and the lack of such ability, according to the study by Audrey Thomas for the Canadian Commission for UNESCO). The Canadian illiteracy rate is slightly higher for women than for men and for rural residents than for urban dwellers. This is a significant problem for our country, especially in light of the adjustments that the labour force has to make to new forms of production in all sectors. It is a particular problem when one considers that women are the largest proportion of entrants and re-entrants into education and training courses and the poorest segment of the community. Finding the means of providing women in this situation with training and jobs and income is a challenge to government planners. It is also a considerable problem for social scientists. The people about whom and in whose interests so much of social science is produced -- that is, the majority of working Canadian men and women -- are those who are least likely to read about, hear about, or understand the results. Social scientists rely on a set of small, elite audiences for their work and ideas, and as long as this is the case, they will remain underfunded, misunderstood, and largely ignored.

It is encouraging to see an increase in the number of people who have some postsecondary training, and in the number of those in the human sciences. Of course, this may mean only that within this generation, a certain type of popular human science (such as that epitomized by Alvin Toffler's writings) may be the topic of general discussion in Canada, like David Suzuki's popularized views on the natural sciences. Instead of a large number of Canadians reading about a generalized North American world, some of them may read about a specifically Canadian world, which will be helpful and useful to the development of the human sciences in Canada. The types of questions raised by Simon Nora and Alain Minc in their Computerization of Society about the future of France's national institutions in the face of the widespread use of computers may be equally usefully raised about the future of Canadian people and institutions -- but not until there is an audience willing to listen to the arguments.

For Canadian social scientists, the question of the relationship between producers and consumers of social science research can be answered by saying that there is no relationship at all between most Canadians and knowledge or research in social science. Social scientists have only a few small, highly specialized, and elite audiences, most of whom are represented at this conference -- the provincial and federal agencies that produce and consume social science research, the university researchers in

social science departments, and a sprinkling of others in the fields of communications, industry, and community organizations. All of us write essentially for each other, and the "bathwater" is now so murky that the community we look to for reaction and support is no longer friendly to many of our claims. (The Science Council has been more sensitive than some to this issue, as can be seen in its work on women in science. The conference proceedings, Who Turns the Wheel?, indicate how Canadian life and public policy in this area proceed without the input of half the population.)

I am horrified and intrigued by a finding of Colin Campbell and George Szablowski in their book The Super Bureaucrats, for which they interviewed 92 senior civil servants in Ottawa. They asked the bureaucrats whom they consult for advice and whose responses they consider most reliable. They found that civil servants consult the media, business leaders, provincial government officials, and friends most often, followed by political leaders, union leaders, opinion polls, or citizen groups. All of these groups were consulted more frequently than academics, who are consulted by 15 per cent of bureaucrats, but whose advice is not regarded as reliable by a single senior bureaucrat. Business leaders and provincial government officials are the only individuals whose advice is considered reliable by more than 15 per cent of bureaucrats. If this is an indication of the influence of social scientists, it should not surprise any of us that social science feels a little like Cinderella in the early stages of her career, with the Natural Sciences and Engineering Research Council and the Medical Research Council playing the roles of the more powerful stepsisters. The only surprising thing is that we should have a Social Sciences and Humanities Research Council at all. As for those social scientists who consider the gender issue to be important, the audience is virtually nonexistent.

I am astonished at the cheerfulness with which scientists in other fields and most business people acknowledge not only their ignorance of but their indifference to psychology, anthropology, political science, archaeology, sociology, and even philosophy. In my experience, these fields of human science are regarded by them as hobbies when practised by anyone beyond the undergraduate years, except when social scientists are called upon to provide precise knowledge to solve a pressing problem. As for feminist theories and women's studies, these are not even respectable hobbies but rabble-rousing fringe activities.

The need for a social science framework is pressing in many areas. For example, many people in decision-making positions tend to see organizations in terms of the founder and the vice-presidents, all male. For them, secretaries do not exist (unless they marry their bosses). They are unaware of the people who clean the building or provide security unless one of them catches a thief or says something particularly charming at the retirement of the president. Technicians and engineers outside the ranks of management are nameless and faceless, as are the mad scientists who invent profitable machines or techniques or who find productive oil wells. Organizational structure or design, the influence of formal and informal structures, all those features of work life that social scientists take for granted as major influences on how work is done and indeed how society is structured, simply do not exist for decision makers. Structured inequality and systematic discrimination (as documented by Rosebeth Moss Kanter in her book Men and Women of the Corporation) are even further from their minds.

This is, I think, why the rich heroes of Peter Newman's journalism are so popular. We are in danger of the Newman type of gossip becoming hailed as the only explanation of social behaviour and economic success among the very group of people on whom we depend not only for funds, but for the use and understanding of our research ideas and findings. John Porter, Wallace Clement, and J.D. House are not included in such a narrow world view although they are "stars" in the sociological studies of Canadian elites and the structure of inequality.

The Role of the Universities

A second aspect of the relationship between the production of social science research and the requirements of society concerns Canada's university system. The background papers of this conference make it abundantly clear that the majority of research in the social sciences occurs in the universities -- or, at least, that that is where the funds for research exist. If the Canadian university system must not only produce the majority of social science research, but also convince the Canadian decision makers and the general public that social science is important, useful to the understanding of social change in Canada, and worth supporting, then some changes are required in universities.

Canadian universities have good faculty and many good students. They have large libraries and up-to-date computing facilities, eager researchers and a granting council devoted to social sciences. But they also have a set of bizarre and outdated organizational arrangements for social scientists in the universities that might collectively be labelled "post-feudal colonialism." This is not deliberate, but it is a logical consequence of the social sciences being asked to make do with the hand-me-downs of the more powerful disciplines in the university.

Where, for example, in a Canadian university is there a social science department with a support staff geared for research? Where is the research secretary or departmental assistant who can keep research accounts for SSHRC or other granting agencies? Where is the statistician or computer programmer who is dedicated to social science methods and research? Where is the central university research administration office that considers social science research development as important as the demands of engineering and science departments? Where is the typist who does not have to be trained anew with each paper to be styled for one of the major social science journals?

In other countries the support staff in universities are encouraged to make their careers in a particular field. I believe that is true of many science departments and certainly of faculties of medicine in Canadian universities, but not, to my knowledge, in the social sciences, and certainly not much in the humanities. By failing to develop a circle of technical specialists and support staff in the universities, we are failing to build up our own enterprise and clientele. One way that universities can maintain their autonomy and bring social scientists closer to the institutional arrangements described by Professor Pacquet and Dr Prewitt is to pay attention to modernizing the organization of university-based research.

Very little organizational attention is paid to social science research. As a result, social scientists involved in research of relevance to public policy or current issues spend a great deal of their time doing contract research through private firms. It is not that they do not want to engage in this research through universities, but that, in most cases, it is impractical and frustrating to do so.

If the organizational eccentricity of many universities is not deliberate, the organizational sexism is. This year several universities are celebrating the one hundreth anniversary of the admission of women students -- for example, Queen's, McGill, and the University of Toronto. Yet I recently heard a lurid account of the debate at one university over offering women honorary degrees. Some of the arguments raised and the logic followed would have made Sigmund Freud blush.

At the University of Toronto women had received doctorates from and were teaching in all major science departments by 1929. Thereafter the situation deteriorated until the early 1970s, even though the proportion of women students rose steadily. Women have constituted a small proportion of faculty and researchers in all fields except the so-called women's professions for many years. Since Reginald Robson wrote his report for the Royal Commission on the Status of Women in 1970, little has changed. In faculty, fields of research, and course offerings, the results point strongly to the presence of systematic discrimination. Meanwhile, in the outside world, the economic activity of women, the reproductive inactivity of women, and the changing relations of the sexes have been major topics of concern and research interest to governments and their agencies since at least 1968. For most women researchers, their best colleagues are in the public service, partly because of its more open hiring policies.

In his analysis of professional workers entitled Professions and Power, Terence Johnson develops a typology of relationships between the consumers and producers of professional products. The first type is what he calls the "patron" relationship. In this case, clients define what they want and how they are going to get it (for example, architects' clients). In the second type, the producer defines what the client wants and how the client is going to get it (for example, the doctor diagnoses the patient's complaint and prescribes the remedy). In the third type, the state intervenes and defines the needs of the client and the product of the professional.

Social scientists in the universities have cried "academic freedom" and, by and large, have defined what it is they wish to study and how they intend to go about it. The state, in the form of SSHRC, has attempted to intervene and define the products and the clients' needs through strategic grants. However, because academics were influential in defining the areas for strategic grants, all this means is that a certain group of academics have defined what other academics will do and hardly anyone has bothered to ask what the general public or specific client groups may want or how they want it. The state has been effective in defining its research needs through contract research, but university reward systems and academic journals tend to ignore that.

The universities are flirting with irrelevance. True, the universities may have the highest level of social science research support and the greatest number of researchers, but organizationally they are losing ground to private enterprise in social science research for the modern age. At least one type of social science is flourishing in the private sector. I regard the best of the pollsters as the researchers-laureate of our era. I refer not to the raw Gallup numbers published in the papers, but the interpreters of those numbers, the Martin Goldfarbs and the Allen Greggs who go beyond the numbers to the interpretation of social relationships and social change. When these pollsters interpret data for a client, they produce

fascinating analyses of contemporary Canadian life. These pollsters have consistently advised their clients that concerns about women's roles in Canadian society preoccupy many Canadians. Martin Goldfarb's advice on how issues arise and are defined has been very influential in economic decision-making.

Pollsters, however, work for powerful private clients and the public seldom hears or sees their best work. Similarly, much of the unpublished proprietary social science research is more interesting than the research that passes the grade for scholarly publishing. Nowadays, information in data banks must be bought rather than shared. Yet universities are not only not using, they are holding their noses at such tainted commercial work. And like librarians, printers, and many other occupational groups, whose careers and livelihood have been transformed by technology and the privatization of information, some social scientists are going to find themselves out of business.

The situation is, in my opinion, ludicrous. I hope that this type of conference, this discussion, can help ease us over the dangerous gulf separating the consumers from the producers of social science research. On one hand, universities have to learn to describe career rewards and objectives less in terms of publication in refereed journals (most of which are in other countries) and more in terms of contributions to the work of Canadian organizations and agencies that are clients of social science research. Clients, on the other hand, need to pay more attention to the work of social scientists. Such attention may take the form of rigorous criticisms and explicit demands for more social science research. In Canada, where royal commissions have been an important impetus toward social science research (I think of the Royal Commission on the Status of Women, for example, or the Bilingualism and Biculturalism Commission for sociologists), the attitude of these royal commissions is a fruitful model for the client-practitioner relationship in many areas of social science research today.

Women and the World of Work

Finally, I want to turn to the question of the problems faced by women in a changing world of work and propose an agenda for social scientists. This is a complicated question. From one point of view, the refusal of many of the social sciences to accommodate the needs of over half the population makes a mockery of their attempts to be modern and address the problems of women in their research. John Trent quotes the economist who, when asked what his discipline had contributed to the gross national roduct, replied, "We invented the concept." This may be true, but in doing so they left out of it the productive activity of most women in the household and in the socialization of children. By far the greatest contribution social science research can make to the problems facing women in the changing world of work is to recognize and incorporate into theoretical and conceptual designs a recognition of the work of women and of the concepts built up by feminist theory over the years.

There are, of course, some pitfalls to be avoided. Women researchers are in grave danger of being suffocated with understanding and isolated into a backwater of research called "women's research." The women's auxiliary is a long-standing social institution in this country. This is the method by which men ensure that while they are making the decisions and reaping the benefits of associations, the wives do not feel useless and unhappy at home alone. It is not, in my opinion, the objective of women's research efforts to be the

"social sciencettes." There is a large number of women and men who are refusing to be drawn into a ghetto of that sort. But that does not mean that the old ideas and the old rules of the game are good enough.

The problems of women in the world of work should be familiar to most people by now -- for example, women earn about 40 per cent less than men. Not only has Canada made no progress at all (with one or two exceptions) in changing the situation, but also most Canadian economists do not even seem interested in the problem. Women are not equitably represented throughout the occupational structure (any more than men are). They are concentrated in low-paying, often dead-end occupations that require them to pay for their training for the most part. Above all, domestic labour and child-rearing are still believed to be the responsibility of women alone. Because of this, many women have two jobs and have to be responsible for the arrangements that permit them to carry out paid employment.

The Australian Royal Commission on Microtechnology and subsequent studies at the Australian Science and Technology Council show convincingly that in Australia, the new technologies have eliminated entire occupations that employed mostly men, whereas in occupations employing mostly women, the number of jobs has gradually decreased or jobless growth has occurred. In Canada there are virtually no reliable data on the impact of technological change and the estimates available are unconvincing. One of the problems now facing Canadian workers, planners, and students is to understand where and when technological change will change their occupational futures. This is not a new change, but it is a potentially more dramatic change than the containerization of the docks that eliminated the jobs of most stevedores; the automation of the telephone system that eliminated jobs for exchange operators; and the mechanization of farming, logging, and some types of fishing and mining that eliminated many jobs in those industries.

The basic problem lies not with the social science research -- or most of it -- but with the social institutions that are the bastions of the old order's entrenched interests.

There is no question that the generation of men and women just beginning their careers faces a complex series of changes. First, these men and women face unemployment -- unemployment of a kind as yet little understood or explained. (The Economist, in a recent issue, reviewed a book of interviews with the new wunderkinder of classical economics. Question: "Do your models help you to understand current events, such as today's unemployment rate?" Wunderkind: "Not completely. The unemployment problem has gotten worse in the last decade. I wonder why that is so." Such is progress in modern economics.)

Second, Canadian men and women face an uncertain occupational future. The questions of when and where innovations in technology, in organizational change, and in changes caused by the increasing international division of labour will strike give rise to debilitating uncertainties. There is a great deal of information and understanding available in the international social science literature about these phenomena that would be helpful to young labour market entrants, but there are poorly developed channels for transmitting that understanding to them or to the agencies that attempt to place and help young workers.

Third, men and women of today face a new set of norms and values about

family life. Should they marry or live common-law? Should they have children or not? Should they recombine families? Should they use neighbourhood or work-related child care (if that option is available)? Should the father look after the children and the mother earn the living? The old assumptions that one would marry for life, blend property, and have one set of children were simplifying assumptions that allowed people of an older generation to get on with other things. The choices are not so easy to make these days.

Recent Gallup polls indicate that the majority of Canadians -- both men and women -- still believe that a mother of young children should not be in the paid labour force. Yet data from Statistics Canada show that mothers of children under six are one of the fastest growing groups in the paid labour force. Attitudes have not caught up with trends and therefore women experience guilt and public opposition along with their lower wages and longer hours. Social science needs to monitor and incorporate such changes now.

The social changes occurring over the past decade in family organization and in female labour force participation are completely unaffected by social science research. But social institutions (such as educational institutions, religious organizations, community agencies, and social services) may benefit quite considerably from the social scientists' organization and presentation of the data and interpretation of the changes, and these groups are willing to use it. Three aspects of social science research on social changes should be developed to a greater extent to meet their needs.

First, as I have just suggested, the organization and presentation of information on what is occurring -- and has already occurred -- in the population, to Canadians in general, and to particular agencies involved in the lives of Canadians needs to be a focus of social science research. In particular, social science researchers need to be more aware of the available data concerning women. It is not a trivial fact that women make up 52 per cent of the population, form a growing proportion of all social classes (unlike other minorities, which are socioeconomically differentiated), are rising, albeit slowly, as a powerful force in economic and political institutions. The facts are incorporated neither into economic theory and analysis nor into the perceptions of researchers.

Second, because the international mobilization of change through information technologies and the associated social organization of work is the great unknown factor, the work of international agencies, such as the Organisation for Economic Cooperation and Development and the International Labour Organization needs to be expanded beyond economic and labour relations analysis to a broader context of the study of change and to be discussed, understood, and criticized in relation to the situation of Canadians on a much broader basis.

Finally, the interests of special groups require research focus. These include regional labour markets; age-specific groups of workers, both female and male; immigrant groups; and particular cultural communities across the country who trail or lead social change at particular historical moments and whose lives and changes need to be better understood. They also include particular social institutions -- those associated with health care, for example -- that are clearly out of tune with the times. Class patterns of morbidity and mortality have remained largely unchanged since the 19th century, as Russell Wilkins has already demon-

strated. These should be added to those groups that are already the focus of social science and social policy attention -- the poor, elderly women, single-parent families, Native and Aboriginal peoples, women trying to enter nontraditional occupations, males not wanting to enter so-called female occupations, and so on.

As long as the audience is only other researchers, as long as social scientists face derision and indifference with unrepentant ivory-tower arrogance, then they will not have the opportunities they need and want to add their work to the understanding of social change and the development of strategies and social policies.

PANEL 4: RESOURCES, REQUIREMENTS, AND POTENTIAL FOR SOCIAL SCIENCE RESEARCH IN CANADA

The Social Sciences in Canada: Research Resources and Needs to Realize Their Potential, John G. Adair, University of Manitoba

Most social science disciplines in Canada have developed the numbers, diversity, and level of scholarly maturity to make significant contributions to society. There are enough well-trained scholars in most areas of most disciplines to provide us with social science research expertise to address empirically questions of social concern, to contribute to the basic discipline knowledge base, and to maintain Canada's reputation at the international level. Most disciplines have reached a maturity of method and basic knowledge upon which applied contributions can be based.

Factors Limiting the Contribution of the Social Sciences in Canada

The Canadian social science academic community is of relatively recent establishment. The average age of its teaching staff is lower than for any other field of study. This has been an often overlooked factor affecting the development of disciplines as well as the careers of individual social scientists. Disciplines such as economics and history, as well as newer areas of study, experienced dramatic growth during the late 1960s and early 1970s, necessitating adjustment and reorganization within their fields of study. That was only a decade ago -- perhaps our anticipation of substantial contributions to Canadian society has been a bit premature. Time is required, especially for young researchers, to get established and to hone their intellectual skills. Moreover, since many of these researchers were imported, it was folly to think of instant results.

At the same time, not all disciplines have had an equal opportunity to develop and mature. The professional disciplines, such as administrative studies, education, and law, have not, for various reasons, reached the same level of development as basic disciplines and will require a further period before their research potential is realized. With their recent growth (administrative studies) and new-found emphasis on research (education and law), together with their focus on the practice of the profession, basic research necessities, such as an adequate number of research trained personnel and methodological paradigms, are still lacking. Special support to assist these disciplines may be required before their hoped-for level of research contribution can be realized.

The impact of current constraints on university funding on the future of every discipline is another area of concern. Faculty appointments may be lost by attrition, regardless of the distortion it may impose upon a department. Even in the more affluent universities, the inability to respond to rapidly developing subspecialties within each discipline places an added constraint on human research resource development. Not to be able to add additional staff or replace those who leave prevents disciplines from keeping pace with the changing shape of their field. The relatively youthful and narrow age range of academics in social science disciplines only compounds these problems. The future contribution of the social sciences to Canadian society will depend, in part, on the extent to which universities are able to adjust to these difficulties.

Despite these concerns, I believe that there are ample human research resources in the social sciences to address problems of Canadian society and that most disciplines are sufficiently mature to enable them to make that contribution. However, expectations may have to be tempered. Consideration

of research resources and the context in which social science research is conducted may allow a more realistic appraisal of the state of social science research and a better appreciation of what is required to realize its full potential.

Human Resources Available for Research

Although most social science academics are heavily involved in research, a certain number in each university are only occasionally or not at all involved in research, persons who are pejoratively referred to as "deadwood."

A survey of Canadian psychology department chairs that I completed in 1984 provides a rough estimate of their number. I asked them to indicate (by subdiscipline area), how many of their current staff were actively involved in research, how many were only occasionally involved in research, and how many were not involved at all, as well as the number of those receiving external research funding. Most were quite articulate in this exercise, although some may have been more conservative in their judgement than others.

The overwhelming majority of university professors in psychology (approximately 67 per cent) were classed as actively involved in research. The percentages of active researchers within different areas of psychology varied considerably and provided some interesting observations. First, researchers in applied areas were clearly the least likely to be involved in research. Only 43.4 per cent of those in clinical psychology were regarded as active researchers. By contrast, researchers in the "hard science" areas of physiological psychology (92.3 per cent), or animal (84.8 per cent), and human (80.1 per cent) experimental psychology were most likely to be actively involved in research. Researchers in the "softer" areas of social/personality (75.5 per cent) and developmental psychology (66.6 per cent) fell in between, with more than 25 per cent of faculty in these areas being classified as occasional researchers or as those who were not engaged in research at all.

The observation that academics in applied areas are least likely to be involved in research is consistent with that found in professional faculties. The very individuals who are oriented toward applied problems have competing professional responsibilities. Applied social scientists are often involved in social service or social action work, activities and demands on their time that compete with and fill the time otherwise available for research. In contrast, many natural scientists who move into applied work tend to remain in research. In the social sciences, an interest in applied problems and an interest in research appear to be mutually exclusive. This is probably one reason for the failure to obtain greater amounts of research directed toward applied problems from established social scientists, and is a dilemma that is not readily solved.

A second observation was that the researchers in each subdiscipline area who had external grant funding were those who had the highest level of research activity. There are several possible ways to interpret this observation. One interpretation is that the active researchers do better work and therefore obtain funding, whereas those who are least actively involved do not produce the quality of work that gets grants. Another interpretation, and one that I hold to be true, is that there is a definite causal effect of research funding on active research involvement. Researchers who are consistently funded at an adequate level will maintain an active research career; researchers who do not receive reinforcement for their research activities -- possibly because

of the vagaries of the granting process -- will likely scale down their research to what is manageable with limited or no monetary resources and ultimately fall into a pattern of lesser research activity and productivity.

Another point that I must mention now, although I will return to it later, is the fact that these data reveal that the subdiscipline areas with the largest percentage of active and funded researchers are the areas supported by the Natural Sciences and Engineering Research Council; the areas with less funding and fewer active researchers are the social science areas supported by the Social Sciences and Humanities Research Council (SSHRC).

Time Available for Research

Research is very much a part-time activity. My recent survey of "Research Activity in the Social Sciences" revealed that members of social science disciplines perceive that they engage in research for only about 25 per cent of their available work time in the eight months of the academic year and for about 64 per cent of the time during the summer months. In short, research is a part-time activity that competes with other responsibilities such as teaching, administration, and community service.

Although comparisons with other disciplines would put these data in perspective, comparable data for non-social science disciplines are not available. I suspect, however, that teaching loads may be lighter and the time available for research slightly greater in other fields of study. Moreover, because they have less technical support and therefore the principal investigators must do the bulk of the research themselves, the time for research is all the more important to social scientists.

Researchers in the social sciences are very sensitive to this problem. In response to my request to identify factors that impede greater research activity and productivity, researchers from all social science disciplines unanimously ranked teaching loads and administrative duties as the greatest impediments, in that order. This is not merely the opinion of disgruntled academics. In the 1984 survey of psychology departments, the teaching load varied inversely with the amount of external funding and the researchers who were classified as active. These data are compelling arguments for SSHRC to reintroduce some form of the research time stipend. Yet because this has only recently been suspended, it may be an awkward time to argue for that program. However, without time released from teaching, research will continue to be a quarter-time activity of most scholars. With some attention to this problem, the research capacity of all disciplines could be significantly improved.

Research Funding

Research funding for the social sciences is totally inadequate and must be increased if social scientists are to realize their potential. It is low in absolute terms and substantially below the level of support provided in 1970. Moreover, it has declined by several percentage points since SSHRC came into existence in 1978 and even since last year, in spite of a vigorous lobbying campaign. I do not believe that this decrease in budget, which began quite early, can be attributed to the failure of social scientists to research socially relevant topics or themes in the national interest. The funding dilemma is more basic than that and has only worsened in recent years.

Equally discouraging to the academic social scientists has been the politicization of the research funding process. In recent years, governments have tended to dictate research topics, research structures, and the distribution

of research money indirectly, through their appointed members of SSHRC and through ministerial approval mechanisms for funding. Rather than assessing the needs of the social science community that might help it to realize its full potential in contributing to Canadian society, SSHRC has repeatedly had to look for high-profile programs that might enhance the political visibility of the government in power and promote greater funding for the granting agency. This approach has often created tensions between the academic social sciences and the SSHRC.

Reaction of Social Science Researchers to Strategic Funding

These tensions were most evident in the dramatic reaction, some might say overreaction, to strategic funding within the SSHRC, in particular to funding for Canadian studies. The reaction almost throttled efforts to increase the overall level of funding for social science research. Social science researchers thereby gave the impression of an indifference toward applied problems facing the country, a lack of support for their granting agency, and a reluctance to increase their level of funding by accepting strategic grant money. The vigorous opposition of social scientists to a "generous" government handout may appear to others to be self-defeating, irrational behaviour. But such behaviour shows how threatened the individual social scientist feels.

In the natural sciences, approximately 65 per cent of the available academic research population is funded. The addition of strategic money over and above this level of support was regarded as a positive contribution to their research activities. Moreover, the topics selected in the natural sciences were broader and built on the existing strengths of the community of researchers. In the social sciences, however, only 7 per cent of the entire research community ever receives funding from the agency in any given year. Rather than regarding the addition of strategic monies favourably, social scientists perceived these new programs, targeted for areas in which Canada lacked research competence, as diminishing support for independent research, as providing irrelevant criteria for access to available money, and as a further burden on already limited resources.

I believe that some diversification of funding sources might be the best way to address this problem. In the United States, for example, the director of the Consortium of Social Science Associations, Roberta Miller, reported that their targeted funding has always come from separate agencies and departments, not from the basic research program of the National Science Foundation (NSF). In this way it has been possible to preserve the role of NSF as a funding agency for basic research and at the same time introduce strategic funding for specific objectives using other mission-oriented agencies.

For a while, Canada seemed close to that situation with the special programs administered by the Secretary of State. The transfer of knowledge to policy makers might have been more effective under such an arrangement. Failing that, another possibility within the present system would be to reformulate strategic topics under broader labels that would appeal to a broader range of researchers.

Research Styles and the Research Funding Process

Apart from strategic grants, there are other dissatisfactions with the research funding process. In my survey of social science researchers, a number expressed concern that the research funding process did not match their needs. Those from data-collecting disciplines (for

example, psychology, sociology) stressed the lack of continuity. Their research requires the training of assistants and the collection of data, and without the assurance of long-term funding, it would be very difficult, in the minds of these individuals, to maintain an ongoing project within the SSHRC system. They advocated a greater number of awards of three years' duration and suggested that the funding be given to researchers who have the ability and the knowledge to make critical research strategy decisions as the project unfolds rather than to specific projects, and that SSHRC reduce the necessity for frequent reports on projects.

Equally valid concerns were expressed by researchers who do not maintain ongoing data collections. Their projects typically involve the individual collection of research materials from libraries and other sources, personal analysis and critical assessment, the preparation and typing of manuscripts, and modest travel costs. They too expressed the concern that the current SSHRC system was not compatible with their approach. With a well-defined project and modest funding needs, they seemed to feel that the time required to prepare the SSHRC grant application for such limited support was almost greater than that required to do the research in the first place.

Quite clearly the diversity of research styles, methodologies, and paradigms among social science disciplines make SSHRC's task difficult. These differences also make it less likely that researchers' needs will be adequately addressed as they would be in a more homogeneous granting agency. This problem is probably more serious than we realize in preventing the social sciences from realizing their potential.

Equipment Needs

In considering the research funding needs of social scientists, it is often assumed that they will need less money because they have no equipment needs. This assumption must be corrected. First, the very fact that social science is labour-intensive has, in recent years, escalated the costs of conducting social science research.

But a more significant erroneous assumption, not even recognized by many of my colleagues, is that equipment is unnecessary for social science research. This kind of thinking has delayed the computerization of research. Adoption of the microcomputer in the public school classroom has occurred more rapidly than it has in the social science research laboratory. Within my own discipline committee in SSHRC, budgets are routinely cut by deleting requests for microcomputers as unaffordable frills. Social scientists' adjustment to the computer revolution may have been deterred by traditional views and the nature of their research training, but the problem will only worsen if resources are not made available to break this cycle. With increasing numbers of computerized laboratories, database management, and word-processing facilities, I predict the acceleration and elaboration of social science research productivity.

Applied Developments in Social Science Disciplines

There has been a significant movement in some social science disciplines toward applied research. Much of this has come from the pressure of students seeking training in areas in which employment prospects are good. As faculty are increasingly pressed to study applied topics, research activity on the problems facing Canada may increase. Most people welcome this as evidence that social scientists are becoming more

interested in applied research. Although there are clear shifts toward more applied areas, I feel that this enthusiasm should be tempered.

Such trends will affect the research development of disciplines. First, most students in applied areas will find themselves attached to advisers who are not active researchers. Since less than half of the clinical psychologists, for example, are actively involved with research, most clinical students will be trained by academics who are not active researchers. Not only will the quality of research training be affected, but these students may also emulate their non-researching role models when they become academics themselves.

Second, the shift of large numbers of students to applied programs creates imbalances in the relative distribution of academic staff and of students. For example, I estimate that in Canadian psychology, only 18 per cent of the faculty and more than 48 per cent of the students are in clinical psychology. This pattern increases pressure for greater resources for applied programs, often at the expense of basic research programs. As well, fewer students will be trained and employed as research assistants in basic research areas, and this may reduce the amount of basic research so essential for progress in applied areas.

The Transfer of Social Science Knowledge to Consumers

Even if all of the foregoing impediments to social science research productivity were dealt with, I would not anticipate a dramatic shift toward improved transfer of social science knowledge to consumers. Most research activity in the social sciences is, according to my survey results, intended to add to the discipline knowledge base, and very little of it is meant for public awareness. Policy planners seem to be more often the intended audience of disciplines most heavily involved in contract research. Social application is rarely the immediate goal of research in any discipline. Although some social scientists may wish it to be otherwise, since the resources available to basic research are limited, I believe that this may reflect an appropriate balance.

If social science research is to contribute to Canadian society in the long run, it must first develop the discipline knowledge base. Whereas some may want to see contemporary social applications and contributions to policy planning as tangible evidence of and cogent arguments for the utility of the social sciences and their need for additional funding, the social sciences cannot afford a substantial reduction in their basic research endeavour at this stage of their development. Moreover, there is already evidence of numerous applications of social science research to Canadian society. An accounting of the payoff from past government investments in social science research can be made (Rule and Adair, 1983) and should justify additional expenditures. Unfortunately, most social science researchers are not inclined to sit down to make those arguments, or to address them to the appropriate audience -- any more than their colleagues in the natural sciences. Most are immersed in attempts to conduct research and to publish their findings within a limited time frame and with uncertain funding.

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New Social Science for a New World, Vincent Lemieux, Professor of Political Science, Laval University

A century and a half ago Alexis de Tocqueville called for a new political science for a new world. I am making a similar appeal today. I will not go so far as to say that we are at the dawn of a completely new world, but the changes occurring today are so profound that social sciences will have to be transformed if they are to contribute to these changes in return. It is from this perspective that I would like to discuss the topic in question, namely the state, potential, and requirements of social science research in Canada.

Three Fundamental Changes

In my opinion, three fundamental changes will affect the future of social science research.

First, as Gregory Bateson has pointed out,[1] science is in the process of moving from a Newtonian world to a world of communication. Explicit or implicit theoretical approaches will be radically changed by this, together with the current framework of ideas in social science, including the concept of causality.

Second, the world of communications will become increasingly complex, with unavoidable local or regional networks. The social science of networks will prevail over that of hierarchies.

Third, such complexity will require a pragmatic rather than an analytical approach. Solving problems will be more appropriate than abstractly analysing variables and models of causality will be useful only from a strategic point of view.

Although these three changes are interrelated, I would like to examine them individually to show how social science research will be affected by them. I will then put forward some reflections and practical suggestions concerning the three areas in which research activity is carried out or which affect it, namely the scientific community, the social milieu, and the university.

The World of Communication

Abraham Moles once commented that the notion of communication took on real significance and value only when, with the advent of telecommunications, the exchange that makes up communication (a vicarious experience, according to Moles) was extended to long distances, so that the character of communication went beyond the immediate experiences of the social being: conversation, command, or request.[2]

This awareness, heightened by considerable advances in the area of long-distance communications has already begun to have irrevocable effects on the very definition of social science and of other sciences such as biology, in which the concepts of codes and messages have become indispensable.

Eminent scholars such as Gregory Bateson[3] and Claude Lévi-Strauss[4] have suggested that society as a whole can be seen in terms of communication. This means that the dominant paradigms in our disciplines, which are largely mechanistic and energetic, must be replaced by communication paradigms. As Bateson puts it, a tree that falls in the forest without anyone to see or hear it is a phenomenon in a Newtonian world, but not in a world of communication, in which nothing exists unless it is perceived by someone.

Communication should not be viewed in the telegraph or ping-pong model, according to which a sender transmits a message through a channel to a receiver who in turn becomes a sender by transmitting a message to the first person, who has now become a receiver. The model of an orchestra, proposed by Yves Winkin,[5] is more appropriate. In this model, communication is conceived as a system of multiple channels through which the social actors play at all times, whether they want to or not. Everyone is part of this orchestra, in which all the members play by tuning their instruments to those of the other members.

The orchestral view has been confirmed by researchers who have studied communication on a smaller scale. After years of analysing speeded-up films on body rhythms and movements, John Condon[6] concluded that it made no sense to represent human beings as isolated entities transmitting unique messages from one to another. Rather, they are interconnected by a set of rhythms specific to a culture, which are expressed through communication.

The following example illustrates how a change in paradigm can affect research. In the study of labour, political, or international conflict, the notion of metacommunication (or communication about communication) makes it possible to go beyond and at the same time integrate the well-known concept of the interplay of forces described by the energy paradigm. As Bateson pointed out, kicking a dog is vastly different from kicking a stone. Whereas the latter causes displacement of the stone, the first "cause causes causes to cause causes," as Anthony Wilden observed.[7] The power of a social player depends not only on what resources the individual has and how much work he or she can do in a unit of time, but also on the context in which the messages he or she communicates are perceived.

Networks and Hierarchies

A number of developments have combined to make the vast communication system that constitutes social life manifest itself as a network rather than as a hierarchy or machine.

First, there has been the development of the means of communication and, in particular, the means of telecommunication. They have become so complex that it has become practically impossible to organize them into hierarchies. According to Joel de Rosnay, one result of technological progress has been that the linear view of action has been replaced by a model made up of multiple paths in which networks interconnect or break up from fluxes and currents that sometimes converge and add to each other or that diverge and run dry, often to re-emerge later.[8]

In a more obvious way, the failure of large organizations and governments to govern their publics in a centralized fashion in the form of hierarchies illustrates the need to think of society in the form of networks, in which hierarchies are occasionally established. The current questioning of the government by all of the social sciences basically stems, in my opinion, from the abandonment of the illusory belief in the supremacy of hierarchical organizations in favour of organizations in the form of networks.

Researchers who have studied social systems know that even those systems that adopt official hierarchical structures cannot survive without the network of relations that develop within the systems themselves or in relation to their environment. The social science of networks, sometimes termed structural

analysis,[9] was founded some decades ago and it has begun to revolutionize some facile views about social systems.

Pragmatics of Communication

In the field of communication sciences, as in linguistics, there are three branches: syntax, semantics, and pragmatics.[10] The use of one or another depends on whether the relationship between the signs themselves, the relationship of signs to the things to which they refer, or the relationship of signs to their users is being investigated.

The social science of communication must include pragmatics and not limit itself to the more objective areas of syntax and semantics. Changes in culture and civilization force social scientists to be pragmatic, for Western culture is in the process of rediscovering, like the great civilizations of Asia and Africa, that knowledge cannot be separated from action. Syntax and semantics end in pragmatics; the interaction between variables can be made concrete only by translating it into interaction between social players.

Game theory, which Georges Guilbaud said was central to human behaviour,[11] has opened the door to this pragmatic approach to the ultimate aim of social science. Although its strict application to the study of social situations has more often been a failure than a success, game theory should be viewed, as Thomas Schelling pointed out,[12] more as a tool for establishing its own theory, in which social situations are applied to mathematical models and not vice versa.

From this new perspective on social action, which was that held by Machiavelli, comes strategic analysis, popularized in France by Michel Crozier[13] and his followers. The aim of strategic analysis is not to convert the social expert into some form of superior technocrat, equally competent in the fields of knowledge and action, but, as Crozier stated himself, to enable the social scientist to help groups become more aware of what they do and thereby carry out a liberating function.[14]

The Scientific Community

Thomas Kuhn said that new scientific paradigms are usually developed by young researchers, or by those who are not attached to a particular discipline.[15] From this point of view, it seems doubtful whether social science researchers in Canada are capable of developing new paradigms, either from a communication perspective or from other unifying perspectives that are more consistent with future society than are the current paradigms. First, Canada has a relatively small number of young researchers because of the aging of the scientific community that has occurred since 1970. Second, the scientific community has become more and more compartmentalized and autarchic, primarily because the number of professors and researchers in economics, sociology, anthropology, and political science has increased since the 1960s. In 1960 I presented my first paper to an ACFAS conference (Association canadienne-française pour l'avancement des sciences) in a section that combined sociologists, anthropologists, social psychologists, and political scientists. In 1984, the program for the political science section alone was so extensive that I had almost no time to participate in the work of the other sections. The same change has also occurred within learned societies in Canada.

It is not enough merely to wish that a new interdisciplinary approach would develop. An interdisciplinary approach in social science, as in other disciplines, generally emerges from applied research on concrete problems. This leads me to touch briefly on applied research in

social science as a service to society, that is, to the social context that concerns the researcher.

The Social Context

Applied research is blind if it is not inspired by basic research. Researchers faced with concrete problems need to have at least one initial idea. Emile-Auguste Alain, the philosopher, once said that there is nothing rarer than an idea. In research, ideas come from the basic science of an era, that is, the major paradigms. Bateson has proposed that the social science of communication claim the status of dominant paradigm for today's research.

Communication as a basic science could not be better adapted to the technological changes that are affecting society and its collective institutions, because these changes primarily affect the phenomena of communication or are thought of in these terms. In Quebec and elsewhere, discussions are taking place about society's ability to cope with technological change and about setting aside some money for research on the subject. This is certainly a vast field of study into which many social scientists could move in the years to come. Some have already begun to conduct research in the field.

It should be emphasized, however, that a systematic approach must be employed that does not separate the social consequences of technological change from the social antecedents that shape the way in which such changes are incorporated into society. To give a concrete example, although the introduction of office automation into the university or other work environments undoubtedly affects the organization and its existing rules, the use of automation is also and initially limited by these rules and especially by the collective agreements already in place. In more general terms, society's ability to cope with technological change involves the three classic stages in the development of social processes: the merging of antecedents to form social input; the transformation of input into output; and the creation of social output and its spinoffs, some of which become the antecedents of new processes.

The University

I will conclude with two brief comments on the university as the perfect environment for social science research. After all, in Quebec, as in the rest of Canada, the vast majority of social scientists will undoubtedly continue to be attached to university institutions in the years to come.

First, although researchers spend most of their working time in the university, they must remain or become open to feedback from the scientific community and society. Original research in social science is stimulated most often, if not to say always, by the personal contacts maintained within the scientific community and, more particularly, within the invisible colleges that cut across it. It is also inspired by challenges from society. The true researcher is pushed in search of knowledge by the tensions he or she sees (sometimes with difficulty) at the interfaces of the three circles to which he or she belongs: the university, the scientific community, and society.

Second, it is in the contact with students and especially with young research trainees that the university social science researchers are prompted to test the existential validity of the paradigms and approaches they use. My personal experience in this regard is that the heuristic tendency toward a world of communication, networks, and pragmatics is awakening an interest today in the younger generation of researchers that undoubtedly stems from their own experience of this new world. I believe

that this trend confirms my comments on what is required of social science research in the future.

Notes

1. See Gregory Bateson's two main works, Steps to an Ecology of Mind (New York: Ballantine, 1975); and Mind and Nature (New York: Bantam, 1979).

2. See Abraham Moles's numerous contributions to Les dictionnaires du savoir moderne : La communication (Paris: Denoel, 1971).

3. Bateson, Steps to an Ecology of Mind.

4. Claude Lévi-Strauss, Structural Anthropology (New York: Basic Books, 1963).

5. Yves Winkin, La nouvelle communication (Paris: Seuil, 1981).

6. John Condon's work is quoted by Edward T. Hall in Beyond Culture (Garden City, New York: Doubleday, 1977).

7. Anthony Wilden, System and Structure: Essays in Communication and Exchange (London: Tavistock, 1972).

8. Joel de Rosnay, Journey to Life (New York: Franklin Watts, 1984).

9. On structural analysis, see S.D. Berkowitz, An Introduction to Structural Analysis (Toronto: Butterworths, 1982). On the study of networks, see also Vincent Lemieux, Réseaux et appareils (Saint-Hyacinthe: Edisem and Paris: Maloine, 1982).

10. See especially Charles Morris, Signs, Language and Behavior (New York: Braziller, 1955).

11. Georges T. Guilbaud, Eléments de la théorie mathématique des Jeux (Paris: Dunod, 1968).

12. Thomas C. Schelling, "What is Game Theory?" in James C. Charlesworth, editor, Contemporary Policy Analysis (New York: Free Press, 1967), 212-238.

13. In particular, see Michel Crozier and Erhard Friedberg, Actors and Systems: The Politics of Collective Action (Chicago: University of Chicago Press, 1980).

14. Michel Crozier, "L'engagement social du sociologue," Recherches sociologiques 2 (June 1971): 25-44.

15. Thomas Kuhn, The Structure of Scientific Revolutions (Chicago: The University of Chicago Press, 1970), 90.

Criminological Research, Criminal Policies, and the Public Authorities in Canada: 1960-1984, Denis Szabo, International Centre for Comparative Criminology, University of Montreal

Introduction

The objective of this conference is twofold: to gain insight into problems faced by the social sciences and to replace the misunderstanding between researchers and decision makers with a greater understanding of the needs and viewpoints of each side. In addition, the organizers wish to determine the various components of the production and use of social science research and examine their contribution to the solution or understanding of the main social problems that concern Canadians. By gathering opinions and information at this conference, they wish to develop a policy for social science research in Canada.

My discussion falls into two parts. In part one, I draw on my experience as a criminologist to examine the problems posed by the close ties between criminology (the systematic body of knowledge produced by all of the social sciences concerning crime, criminality, criminals, and organized social reaction to crime) and criminal law, and between criminology and social policy. The relationship between criminology and criminal policy differs for clinical criminology and for the criminology of social reaction.

In part two, I examine the Canadian situation and attempt to identify the problems posed by the production of research and its use (the latter is closely tied to research financing). I conclude with some suggestions aimed at improving research to enhance knowledge (the scientific function) and increase the social utility of this knowledge (the political function).

Part One: Criminology and Criminal Policy

Clinical Criminology and the Criminology of Social Reaction: Their Relationship to Criminal Policy

Clinical criminology draws on behaviourism and organicist and evolutionist theories. It has also benefited from a resurgence of sociobiological studies. It is based on the following premises:

1. All human aspirations are organized around forces of attraction and repulsion, which, when combined in complex interacting systems, constitute human nature. The popularity of works by Carl Sagan, Arthur Koestler, and Edgar Morin,[1] who have brought the results of biocultural scientific research to a wide public, testifies to the widespread acceptance of this thesis.[2]

2. There are a limited number of personality types as well as types of organizations, structures, and institutions.

3. Scientific determinism, supported by all the insights that the philosophy of science has achieved since Thomas Kuhn,[3] considers human action as a dependent variable that must be explained through independent or intervening variables of either environmental or biophysical origin.

4. Crime and punishment are universal.

The criminology of social reaction draws primarily on political and social science sources. Whereas Cesare Lombroso is considered the originator of

clinical criminology, Emile Durkheim is regarded as the founder of the criminology of social reaction. Durkheim, who stated that there is no crime outside that defined by society, prompted criminologists to examine the origin of the antisocial act in conjunction with the law prohibiting it. The contributions of legal sociology to clinical criminology include an understanding of the crime in relation to the social forces that prohibit it and an analysis of delinquency in the institutional context of laws and legal institutions. For example, the concept of positive and negative deviance influences conceptions of crime and gives it a relative nature.

What is the relationship between the criminology of social reaction and criminal policy? Initially it was less obvious than that between clinical criminology and the positivist school or the movement of new social defence. Although clinical criminology developed largely in the context of penal and legal applications, the same could not be said for the criminology of social reaction. The majority of researchers affiliated with the various faculties of law, philosophy, and social science did not have the same first-hand knowledge of the criminal justice system. Consequently, the contribution made by the criminology of social reaction was more along the usual lines of scientific application in the political field. Primary consideration was given to analysing phenomena and criticizing institutions. The failure of these institutions to adapt to designated objectives or to disputable (and disputed) value systems was the subject of studies and political controversies that were promoted primarily by social-reaction criminologists.

Criminology of the Penal System and Criminal Policy

The concept of applied or organizational criminology[4] expressed a view of criminal policy that was related to the criminology of social reaction. Another trend has also emerged: radical criminology, which is in essence a political version of the science, both in its Marxist-Leninist leanings (in Western countries) and in some of its ethnomethodological or structuralist versions (as in the writings of Michel Foucault). In terms of epistemology, science is a social action taken against an old order to bring about a new one.

The criminology of the penal system basically uses a systematic approach to analyse legal institutions. It assesses their performance based on values that it claims to hold in trust. Criminal policy is considered a function and integral part of social policy, analogous in many ways to health, education, and employment policies.

In my opinion it is neither possible nor useful today to attempt to arrive at a single notion of criminology or criminal policy. With regard to the latter, it could be said that there is one criminal policy for legal specialists and another for political and social science experts.[5]

Part Two: The Canadian Situation: Problems of Cooperation Between Universities and the Public Sector -- the Example of the Federal Government

Prior to 1960 criminology was not a separate discipline in Canadian universities.[6] The creation of a university framework for study and research took place between 1960 and 1970 and is still being developed. At present there are departments or schools of criminology at the universities of Montreal, Toronto, Ottawa, and Alberta, and at Simon Fraser University. Smaller programs have been established at the universities of New Brunswick and Regina. The programs at Simon Fraser and Ottawa are modelled on the one at the Univer-

sity of Montreal, which consists of undergraduate studies leading to master's and PhD degrees in criminology. Research constitutes the major part of the postgraduate program, with less emphasis being placed on course work. At the University of Toronto, criminology is offered at the postgraduate level through a combination of research and course work. At Montreal an international centre for comparative criminology was established in 1969, separate from the school of criminology.

From the beginning, these programs received the encouragement and financial backing of the federal government, despite the fact that the universities and the provincial departments responsible for postsecondary education were by far the main contributors of funds. The federal government's interest lay in its clearly identified need to develop a professionally trained body of officials and administrators in an area for which it was responsible. At the time, belief in the professionalization of the social services was largely shared by academics and federal policy makers. In addition, academics and policy makers recognized the importance of both basic and applied research. This natural complicity between the members of the university community and government authorities was a honeymoon period that lasted for the entire expansionary period of the welfare state and coincided with the years of prosperity that ended with the first oil crisis, approximately 10 years ago.

The channels of communication for people and ideas were open and unobstructed. Young government officials adapted the ideas, theories, and concepts they had learned in the university to the government research services. The directors of such services were often more like deans than administrators serving a political power. Weber's criteria for a legitimate bureaucracy (the application of rational methods, the use of scientific information to justify decisions, and so on) were developed during this period.

Government departments were generally receptive to academic researchers and readily welcomed input and suggestions from all types of academic institutions. The sponsoring agency did not intervene in the choice of topics, but accepted or refused the final product. Deadlines were flexible. Senior officials and even political leaders actively participated in research conferences and symposia organized by the universities. Moreover, these activities were generously funded and provided on-the-job training for government officials and academics.

Work was allocated according to the qualifications and prerogatives of each laboratory. The government's priorities were broad, stemming from a consensus reached in conferences and meetings in which the participation of everyone was assured. It required only a modicum of adaptation on both sides for everything to operate smoothly.

Problems from the Government's Point of View

This idyllic situation gradually came to an end around 1979 as a result of budgetary cutbacks, the employment of professional criminologists by the government as practitioners and their involvement in the decision-making process, and the increasing importance of the government bureaucracy responsible for research administration.

Budgetary cutbacks were the result of two factors. First, Treasury Board directives laid down stricter criteria for granting research funds. Increasingly, the use of funds had to be justified in terms of government objectives. Second, the number of applicants

increased more rapidly than did the funds themselves. To the traditional recipients of funds -- universities in Montreal and Toronto -- were added universities first in Vancouver and Ottawa, then in the Prairies and the Maritimes. The funding pie was being divided into smaller and smaller portions.

The professional criminologists employed by the Royal Canadian Mounted Police (RCMP), the Penitentiary Service, and the Parole Board as practitioners never really shared the federal policy makers' favourable disposition toward criminological research. They viewed such research as competition for the funds they urgently needed to raise the professional standards of their own services. Moreover, because of the nature of their duties, they tended to think more in terms of people than systems: they regarded criminal behaviour as a socioadministrative problem that had to be solved on an individual basis. To use the expression of John Conrad, former director of research for the United States Department of Justice, these practitioners were "problem thinkers" as opposed to researchers, who were "systems thinkers."[7] Conrad was paraphrasing Nietzsche, who contrasted systems philosophers such as Kant and Hegel (whose theories he deplored) with those who thought in terms of persons and individual destinies (the approach he preferred).

It is easy to understand how these important services, representing thousands of government officials, acted as a brake on the enthusiasm of the planners and thinkers who viewed things in terms of abstract systems. Directors of research services found themselves caught in an uncomfortable, indeed precarious, position between the practitioners and the university researchers.

The establishment of a policy branch in addition to the research services was the result of a compromise between those who believed in the virtues of research and viewed criminological problems in terms of systems and those who wished to solve problems as they arose in terms of the particular circumstances and the impact of remedial measures on individuals. Since that time, the policy branch has continued to expand at the expense of the research service.

The growing burden of administering the research itself must also be pointed out. Numerous divisions and subdivisions concerned with various fields of activity, such as police work, correctional services, crime prevention, juvenile delinquency, and so on, were created. This led to delays, inflexibility, red tape, and communication problems, so that it became rare for projects to be completed within a fiscal year. This trend went hand in hand with increased funding available for contract research and the corresponding decrease in funding available for independent basic research or research that did not directly reflect government priorities.

The culmination of this process was the government's development of a standard contract for research work that was so complex and that involved so many restrictions that at least one of the major universities (the University of Toronto) that had traditionally cooperated with the government in criminological research, decided to stop submitting proposals until the contract was radically amended.

After a harmonious and happy symbiosis between university-based research criminologists and government research services that lasted about 15 years, criminology has arrived at a situation that leaves much to be desired. I have just outlined the reasons

why the government services lost their initial fervour. But what had happened in the universities?

More Problems: The Universities' Point of View

The anti-authority movement that swept North American and Western universities toward the end of the 1960s, and the so-called "adversary culture" of leftist intellectuals, had a significant effect on criminology. The involvement of a number of researchers in political or ideological movements aroused the suspicion of government officials and practitioners about the objectivity of the research. This politicization of the discipline, however, which actually led to the closing of the school of criminology at the University of California at Berkeley, never reached the same calamitous proportions in Canada. The government's tendency to delay authorization for the publication of contract research results, sometimes for considerable lengths of time, provoked long and difficult discussions. Government officials took so long to assess lengthy research reports that the benefits from their publication, which researchers counted on, were drastically reduced.

The potential use of research (especially contract research) by government practitioners was also a difficult problem. Academics rarely had the talent or the experience to outline the many possible applications of their research. Increasingly, however, this requirement became the sine qua non for obtaining research funds. Those who thought in terms of cases, individuals, and concrete problems to be solved required that those who thought in terms of systems convert the results of their research into usable form.

University researchers were poorly prepared to fulfil this requirement. Furthermore, the services that were requesting the research often expressed their needs in vague terms. To complicate matters, academics did not have direct access to representatives of the services or to the practitioners; instead they had to go through he government research services. These services, composed largely of researchers with criminological training, had difficulty translating research done in terms of systems into the language of cases.

As a result of such problems, the government began to conduct certain studies directly related to its own needs, using in-house researchers. Furthermore, both sides grew disenchanted with large-scale research that took years to complete. Not only was the cost of such research very high, but government priorities often changed before a study could be completed. What was considered essential and urgent one year might appear at the bottom of the list of priorities the next. Consequently, in recent years there has been a trend toward more short-term research that meets more immediate and well-defined needs. This trend represents a victory of those who think in terms of cases over those who think in terms of systems.

The problem faced by the academics involves their own research priorities: if researchers' needs do not coincide with those of the government, then their research is, in a sense, mercenary, that is, it has no personal interest for them. It seems that Canada does not have a critical mass of researchers who have a basic, intellectual curiosity about their subject matter.

Nevertheless, the overall result of these past 15 years of cooperation between the universities and the federal government has been positive. Sums of money, which are relatively large and reasonably free of restrictions, are set aside for academic research, for research centres, and for postgraduate

training (approximately $1 million in 1983). These funds encourage the universities to continue supporting criminological research. A number of national projects directly related to the development of criminal policies have been completed. These projects, which examined victimization and public attitudes toward delinquency and justice, permitted a better assessment of the impact of criminal behaviour on Canadian society and of society's reaction to new means of crime prevention and rehabilitation of offenders. A longitudinal study is also being planned to examine the process of juvenile justice in the light of recent parliamentary amendments to this legislation.

Controlling Criminality in Canada: Problems Posed by Social Realities

What of the future of criminology in Canada? What would be the best way to restore the harmony that characterized university researchers' relations with the government 10 years ago? In my opinion, this is not an impossible task, but it will require a spirit of cooperation and accommodation on both sides. To outline the terms of this "new deal," I will first discuss the main organizational problems faced by the federal government in carrying out its constitutional role of safeguarding citizens and their property. I will then assess the ability of criminologists to contribute to the government's task without compromising their own mandate.

What are the problems posed by crime, punishment, and crime prevention in Canada? The crime rate in Canada has been rising for the last 100 years, or at least since criminal statistics were first recorded. In 1880 there were 120 convictions for crimes and offences per 100 000 inhabitants; by 1970 this figure had more than quadrupled to 520. In 1890 there were 120 convictions for serious crimes per 100 000 inhabitants; in 1970 this figure stood at 600.[8] Regional crime statistics show that in British Columbia the conviction rate for serious crimes has increased by a factor of 4.3 over the past 100 years, which means that the number of convictions for serious crimes doubles every 50 years. Crime patterns show a significant decrease in violent crimes against persons (21 per 100 000 in 1886 compared with nine in 1960) and a notable increase in violent crimes against property (eight per 100 000 in 1886 compared with 23 in 1960). The rate for minor (nonviolent) property offences has remained almost unchanged (59 per 100 000 in 1886 compared with 54 in 1960). Alcohol-related offences constituted more than 40 per cent of all convictions in 1881. This rate has dropped to about 10 per cent in the second half of the 20th century. At present, traffic-related offences account for by far the largest proportion of convictions in Canada.[9]

Canada is one of the most urbanized countries in the Western world. The relatively high crime rate in this country seems to be directly related to the fact that almost 70 per cent of the population lives in urban centres. The second factor that has an undeniable effect on crime is age. The rate of juvenile delinquency has been steadily rising, and the average age of first-time offenders has been decreasing. The baby boom of the 1960s may also be considered a structural criminogenic factor.

Let me now examine a few facts regarding organized social reaction (attitude of the public, rate of incarceration, and size of police forces). The rate of incarceration in Canada is relatively high. In 1981, 84.5 persons per 100 000 inhabitants were in Canadian prisons or penitentiaries. The United States rate is 174.5, whereas the Australian, French, Dutch, Japanese, and

British rates range between 13.8 (Holland) and 76.1 (United Kingdom).

In Canada there are 221.6 police officers per 100 000 inhabitants, compared to the United States (226), the United Kingdom (230), Australia (214), and Japan (330). All figures are for 1980.[10]

The above figures outline crime and justice in Canada. Canada makes more extensive use of imprisonment than do countries in Europe; the rate is closer to that in the United States. With respect to the size of its overall police force, Canada is about average.

Without attempting a comparison that would have obvious limitations, a glance to the south of Canada's borders may prompt the criminologist to consider the types of problems this society and criminal justice system might one day have to face. Although the multicultural nature of Canada differs significantly from the melting pot that exists in the United States, adolescents from second-generation families of immigrants whose original cultures are vastly different from that in North America may experience problems of adaptation. These are heightened by the traditionally high rate of unemployment among youths aged 16 to 22.

The fundamental changes occurring in the family are another concern. The notable increase in the number of single-parent families is significantly affecting the socializing role of this institution.[11] The phenomenal increase in the school population, resulting from an intensive school policy pursued by all governments, creates further adaptation problems for youths who find school programs insufficiently diversified or unsuited to their needs. The widespread exposure to violent, deviant, aberrant, and delinquent behaviour via the electronic media might also affect the future crime rate.[12]

The factors mentioned above are all macrosociological factors and their criminogenic impact can be changed only by social policies that lie largely outside the field of criminal policy. However, this fact does not lessen their impact on patterns of crime.

Situational criminogenic factors also play a role in determining crime rates and patterns. These factors include the proximity of the aggressor's and the victim's environments, the attractiveness of particular communities to predators, the awareness of occasional or habitual offenders of situations involving opportunities for crime or immunity from punishment, the vulnerability to criminals of goods and property in a community, or the existence of commercial or recreational establishments that attract an unstable and deviant population.[13]

Research Priorities

I will now quickly examine a number of problems with which Canadian criminal policy must deal, from the point of view both of criminogenic behavioural factors and social and judicial control. These problems (except those related to Native peoples) are not unique to Canada. The same issues concern most Western nations; they differ only in their relative degrees of seriousness.

The rate of violence against persons has decreased, but there has been an increase in the rate of violence against property. Thus violent behaviour is still a major concern of criminological research and criminal policy. The abolition of the death penalty has not affected the rate of violent or serious crime either in Canada or elsewhere.[14] It is one indication among many that repressive measures have little effect on

the expression of violence between individuals. No-one wishes to revive the discredited and oversimplified studies on biocriminology, yet scientific evidence is mounting for the importance of genetic and neurobiological factors.[15]

Donald West and David Farrington noted that less than 5 per cent of the families studied in a criminal population were responsible for almost one-half of the convictions.[16] In his study of the role of the family in delinquency, Travis Hirschi pointed out the concentration of criminal behaviour in a very small number of families.[17] Studies on a group of habitual offenders revealed that 4.09 per cent of the individuals in the sampling were responsible for 69.04 per cent of the convictions.[18] All these data point to the paramount importance of conducting research into the bio-psycho-social causes of violent, delinquent behaviour. Such studies could be done on an interdisciplinary basis in the faculties of medicine and social sciences, combining a number of methods and theories. I believe that Canada should take part in such studies (in the same way as it contributes to research on cancer, for example), even if they are international in scope and are concentrated in the larger universities of the United States.

Juvenile delinquency continues to be a major concern for criminologists. The psychological, sociological, and cultural dynamics of confirmed criminal behaviour cannot be understood without some knowledge of the factors contributing to juvenile delinquency. Studies of groups (or cohorts) such as those done by Marvin Wolfgang in which he examined patterns of criminality for all youths born in 1945 in Philadelphia whose criminal records could be traced back to age 18, have contributed to an understanding of the problem.[19] Similar studies have been carried out in Canada, at the University of Montreal in particular. They must be encouraged.

In recent years the study of the criminal backgrounds of habitual offenders has become the strategic factor in developing effective policies for prevention, rehabilitation, and correction. The threat that a particular individual or category of individuals poses to society must be calculated and assessed by organizations responsible for controlling criminal activities (police forces, Crown attorneys, the judiciary, and probation and parole services).[20] A small number of criminals represent a high risk for society. Studies of these criminals may give rise to complex theoretical and methodological problems, but Canada has the intellectual resources in its universities to meet this challenge. To a large extent, Canadian policies on sentencing, bail, preventive or provincial detention, penitentiary systems, and so on, depend on a greater knowledge of the risks that various types of offenders represent. The failure of existing policies to differentiate these types results from insufficient information on which to base predictions.

The problem of social reintegration in the community and its relation to the extrajudicial control of criminality becomes an increasingly important concern as penal sentences are reduced. The mobilization of community resources within the framework of a cooperative and financial policy, by which the community could contribute time rather than money for the administration of justice, must be considered. Experiments of limited scope, but which are specifically controlled, must be developed so that their impact can be assessed. The drawbacks of using prisons to ensure public safety are obvious: they are too expensive, their value for psychosocial treatment is questionable, and they are so overcrowded that a prison subculture has been created that is extremely criminogenic and violent and practically uncontrollable. The

only answer is to adopt sanctions that do not involve imprisonment and for the community to accept responsibility for casual delinquents, deviants, and minor offenders.

Other problems are strategically important for current Canadian criminal policy. These include the adaptation of the judicial system to the recently recognized needs of victims of criminal offences; the study of organized crime; the abuse of power by the economic elite, whose impunity undermines the legitimacy of the judicial system; and the use of drugs and alcohol as a factor contributing to crime. These are research topics that can best be studied by the social science departments of universities. An examination of documents from the Department of the Solicitor General reveals a sprinkling of grants awarded for research projects that examine the role of the police, sentencing, correctional services, juvenile delinquency, justice, victims of crime, and crime prevention.[21]

Why Are Things Not as They Might Be?

Criminologists are unlikely to disagree on the problems to be dealt with, for there is a fairly large consensus among them as to research priorities and criminal policy objectives. This consensus is largely shared by government representatives and penal justice practitioners. It might even be said that, without any additional research, the effective use of existing scientific knowledge could lead to considerable improvements in the judicial system and, consequently, in the safety of citizens and property, and in the quality of community life. Why, then, do so many people believe that the system of social justice is stagnating and unable to carry out its role? James Wilson, an eminent American specialist in public administration, suggests that the reason for this paradox lies in the particular rationale and activities of institutions of social justice, which undermine the overall objectives of the system of social protection in the name of corporate, individual, and special interests. Wilson calls these motivations "perverse."[22]

Thus I come to the basic, philosophical question about the nature of the relationship between knowledge and action, information and intervention, and logical and illogical actions, as stated by Wilfredo Pareto 100 years ago. In an interesting study, Knowlton Johnson clearly described the basic problem raised by the organizers of this conference. Analysing an innovative experiment involving the university and the system of criminal justice in their area, Johnson and his associates noted the existence of four schools of thought regarding the implementation of planned social change. The first is directed toward problem solving; the second toward research, development, and the diffusion of research knowledge; the third toward social interaction; and the fourth stresses the ability of power to exercise coercion. The experiment successfully incorporated all four approaches.[23] However, I would like to point out the importance of the fourth approach. The tendency of social science experts (most of whom have liberal convictions) to underestimate the central and decisive role of coercive power is responsible for many of the illusions and failures of social policy. Most social scientists feel comfortable with the first three approaches, which call for scientific knowledge (of which social scientists are the accredited producers), the reconciliation of interests, the enlisting of all interested parties, the assessment of the results obtained from properly conducted tests, and the dissemination of the results to all concerned parties. However, this idyllic view of how social change is planned fails to account for the fourth approach, which focuses on power and

how the exercise of power ensures the defence of individual interests.

In fact, a strong and intelligent political power (some do exist) will consider the best means of achieving the objectives for which it was given power. In the first part of this paper, I touched on these problems. In particular, I noted the difficulty of separating in practice the positive from the normative in policy sciences. Therein lies a basic epistemological and ethical problem for social science practitioners. In concrete terms, a criminologist who accepts the existing régime and constitution will practise policy science without too much difficulty and will participate in experimental criminal policy in his or her country. Advocates of certain socialist doctrines (there are many in the social sciences) will hesitate to lend their support to the maintenance and repair of a system whose basic principles they challenge.[24] The same dilemma confronts certain neoconservatives of libertarian tendencies, for whom social change and reform promote the interests of the intellectual class and of those who manipulate public opinion, to the detriment of other social classes.[25] Such persons have been, since the French Revolution, "masters of the world of unverified plausibilities."[26]

In Support of a Pluralistic Mode of Cooperation between University and Government

I must conclude by expressing strong reservations as to the possibility of proposing a model of cooperation that would be unanimously accepted by all parties interested in using social science for better government in Canada. The failure of optimistic predictions about the effect of knowledge on social progress and on the spirit of compromise and reasonable agreement are, in my opinion, proof of a naiveté that stems from the legacy of the Age of Enlightenment and from an overwhelming faith in the power of science to solve the mysteries of the unknown. Many people prefer to believe in the liberating power of knowledge, given that they have to believe in something. Personally, I would rather believe in this power than in the power of manipulation, sabotage, and the confrontation of rough and unscrupulous forces. However, as a long-time observer of the social and political scene, I cannot conceal or underestimate the influence of coercion by those with this power.

Therein probably lies the difficulty of formulating a definitive response to the matter raised by the organizers of this conference. The response will differ depending on the model and the outlook adopted for social change. Some individuals will seek models that differ quite radically from the present system. They should be listened to carefully, for they focus attention on interests and values that tend to be underestimated in a liberal, legal state. The socialist and neoconservative models have important messages. For those advocates of a criminal policy that accepts the constitutional and philosophical status quo of a liberal and pluralistic state (which practises strict separation of powers and accepts popular sovereignty through free and regular elections), I have outlined the problems raised by criminality and the administration of justice, and their relationship with criminal policy.

Despite a few regrettable shortcomings, Canada is one of the leaders of the group of countries that turn to criminology for aid and inspiration in formulating criminal policy.[27] I have described a certain disillusionment -- crisis would probably be too strong a word to use -- in the necessary relations between academics and government officials. Insofar as Canadians live in a liberal state, why not improve communication by bringing members of the

scientific and professional communities together with representatives of the public to apply government policies? In the United States and a number of European countries, similar committees operate to the satisfaction of all parties. Why not adopt this practice in Canada?

Postscript

The preceding comments are based on almost 25 years of intensive cooperation with the federal government. I have already published numerous works and articles on the use of social science in the field of criminal policy. The Eleventh International Congress of Criminology, which I had the honour of chairing in September 1983 in Vienna, dealt solely with the impact of criminological research on criminal policies and practices.[28] In my opinion, the problem raised by this conference is crucial to the future of criminology. Canadian criminology is highly regarded throughout the world. It could not have developed without the active support of the universities and, in the end, of the policies governing education and research. I have not, however, looked at the role of other organizations, such as the Social Sciences and Humanities Research Council of Canada, the Department of Justice, the Human Rights Commission, and the royal commissions of inquiry, not to mention the provincial organizations whose role and influence on the development of criminology have been considerable. These issues have been discussed in other publications.[29]

Notes

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3. Thomas Kuhn, The Structure of Scientific Revolutions (Chicago: University of Chicago Press, 1962).

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5. D. Szabo, "Criminologie comparative et son importance pour la politique criminelle," in La comparaison en tant que méthode scientifique en droit pénal et en criminologie (Berlin: Duncker and Humblot, 1980).

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14. E. Fattah, A Study of the Deterrent Effect of Capital Punishment with Special Reference to the Canadian Situation (Ottawa: Information Canada, 1972).

15. S.A. Mednick et al., op. cit.

16. D.J. West and D. Farrington, The Delinquent Way of Life (London: Heinemann, 1977).

17. T. Hirschi, op. cit.

18. E. Flynn, "Critical Issues in Crime Control Policy," American Behavioral Scientists 27(1983): 7-42. See also M.E. Wolfgang et al., Delinquency in a Birth Cohort (Chicago: University of Chicago Press, 1972).

19. M.E. Wolfgang et al., op. cit.

20. See J. and M. Chaiken, Varieties of Criminal Behavior, Rand Report R-2814 (Santa Monica, California: Rand Corporation, 1982); P. Greenwood, Selective Incapacitation, Rand Report R-2815 (Santa Monica, California: Rand Corporation, 1982); and recent studies by the American Academy of Science.

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24. L. McDonald, The Sociology of Law and Order (Montreal: Book Centre, 1976).

25. T.H. Sowell, Knowledge and Decisions (New York: Basic Books, 1980), 368 ff.

26. Ibid., 380.

27. D. Szabo, "Révolution permanente ou éternel renouvellement : la criminologie en situation," in Continuité et rupture des sciences sociales au Québec (Montréal: Les Presses de l'Université de Montréal 1984), 401-434.

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PANEL 5: TOWARD YEAR 2000: ISSUES REQUIRING SOCIAL RESEARCH

Priorities in Social Research to the Year 2000, Greg Mason, Institute for Social and Economic Research

Introduction

It is tempting to develop an elaborate agenda for social research to the year 2000. Certainly there is no lack of pressing social issues requiring attention. Yet the year 2000 is but 15 years away -- not even a generation. My projected retirement, if I am able to retire at the age of 65 on a reasonable pension, extends well into the 21st century, and it is more than likely that most of the critical social issues today will remain largely unsolved at that time.

Rather than chronicle and order research questions (which would undoubtedly reflect a measure of self-interest and cultural bias) it is more useful to consider some fundamental issues in social science, and then to ask whether many of the commonly identified problems do not overlap. My view is that social science and social policy research are utterly fragmented, and that much of what government does in policy research is misdirected and encourages the production of redundant and piecemeal knowledge. In large measure, this inefficient production of social knowledge reflects some misunderstandings about social science and how it differs from the production of knowledge in the natural sciences, particularly in matters of knowledge production and application. Thus it is both ironic and curiously fitting that the Science Council of Canada should sponsor a session on social research, insofar as a basic postulate of this paper is that much social science as it is now practised is not scientific. At best it is prescientific.

Social Science as Science

If the social sciences have anything in common with the natural sciences, it is the scientific method as it is popularly understood. Certain hypotheses are formed based upon a theory. Empirical work is undertaken to test these conjectures. If at all possible, the conjectures are tested using a variety of data and basic functional forms. The Keynesian consumption function, for example, was developed in this way. Based upon the very reasonable theory that household consumption increases at a slower rate than does household income, it forms the heart of every econometric model. The hypothesis was validated using national accounts data based on Keynesian definitions.

In general, macroeconometrics has engaged in empirical work based upon official data that, once collected by the central statistical agency, is final. Macroeconometrics has had to develop heroic assumptions in order to use statistical procedures largely devised for experimental settings; many of the recent advances in econometrics have been elaborations of advanced procedures applied to crude, nonexperimental data fraught with biases and distortions. For example, the regression model was developed by R.A. Fisher for use in biological experiments involving many samples or trials. Economists usually have only one sample and often must assume constant variance in the dependent variable for each level of independent variable. As Wassily Leontief recently noted, economists have increasingly ignored issues of data production and definition, in favour of a much more comfortable refuge in assumptions and theory.[1]

Other social scientists are not exempt from criticisms. Two examples serve to illustrate the chasm separating social and natural science: the Hawthorne effect and social experimentation.

Hawthorne Effect

The fact that subjects "react" to social research was first systematically noted in a series of productivity studies conducted in the Hawthorne works of the Western Electric Company. The studies were begun in the early 1920s and continued until the Second World War. Two studies attempted to quantify the effect of lighting on worker productivity in a series of controlled experimental settings. A priori it was hypothesized that as the illumination in the treatment group was reduced (the control group had a constant level of lighting), productivity would fall. In fact both groups showed increased productivity at first. Only when the lighting in the treatment group fell to three foot-candles did productivity begin to decline, as subjects began complaining that they had difficulty seeing. Clearly, other factors influenced productivity. Researchers hypothesized that various psychological factors were at play, and that in some cases these factors were sufficiently strong to keep productivity levels constant, even at levels of lighting comparable to moonlight.

Another variant of the experiment altered the method of determining wages, the cycle of rest and work periods, the length of the work day, and so on. Not surprisingly, productivity increased. Two years after these manipulations were begun, they were ended. Workers returned to the pretest working environment, but their productivity remained constant. What had happened was that the researchers had unwittingly increased productivity by providing a period of special privileges, including increased attention to the workers to ease their anxiety about the experiment.

The Hawthorne effect has since come to refer to a rather general set of experimenter-induced effects producing "reactivity" on the part of the treatment and control groups, a reactivity that is independent of the researcher's experimental manipulations. J.G. Adair[2] recently reviewed the Hawthorne effect and discovered that those studies that seem to have produced the effect involved adults and did not evaluate the impact of treatment on well-practised skills such as writing. He also cited evidence from industrial psychology that demonstrates that the presence of a Hawthorne effect is directly related to the subjects' interpretation of the intent of the research.

Adair argued that most social experimental research actually contains two experiments -- the one intended by the researcher and the one actually experienced by the subject. The subjects' reactivity may not be confined to purely experimental situations. Social research may have to rely increasingly upon a phenomenological approach rather than the objective and quantifiable approach that characterizes the natural sciences.

What distinguishes experimental social research from research in the natural sciences is the need to analyse the subject's interpretation of the research. This calls for attention to how questions are phrased, analysis of the qualitative verbal data generated, and systematic analysis of counterintuitive findings, which are the rule whenever rich, multivariate information is collected.

The reactivity of social research may be quite general. For example, the rational expectations school of economics denies the possibility that economic policy can effectively control business conditions, simply because the main actors -- households and firms -- are sufficiently well-informed by economic forecasts to counter any move to mediate fluctuations in growth, inflation, and unemployment. This

conjecture has produced extreme controversy among economists; today that controversy takes the form of political debates on the appropriate degree of intervention by government in the economy. This is not the place to judge the validity of economic theories. Nevertheless, it is important to underline that a basic element of the rational expectations argument is that information produced about the economy can be used to negate the validity of predictions and then to reduce the ability of the central authorities to influence the course of events.

As another example, the principle of reactivity is behind the current controversy concerning the influence of political polls on an election. Many people fear that polls can have a "bandwagon" effect, as undecided voters are swayed in one direction or another by news of mounting popular support for a party. This effect makes the poll a poor predictor of electoral outcomes and, more importantly, attenuates the functioning of an electoral democracy.

The basic point is that the reactivity of the subjects in social research produces difficult conditions for the social researcher, not unlike the problem of "operationalism" faced by the experimental physicist who must take into account the influence of the research tools and settings on the research results. It is entirely possible that social researchers will never be able to develop secure methods for modelling reactivity, although this is certainly a crucial methodological issue.

Social Experiments

In the mid-1960s, major social experiments were designed to evaluate a series of basic policy questions. One important proposal that was subjected to experimental evaluation was the guaranteed annual income, a scheme devised to advance the war on poverty. Proponents of the scheme, including those on the right of the political spectrum, argued that a guaranteed annual income (or a specific variant of it known as the negative income tax) offered significant possibilities for reducing the burden on the welfare state, and at the same time could deliver income assistance to those most in need of it without subjecting recipients to tests for determining income and wealth. Opponents argued that any income assistance, especially to "able-bodied" people, would encourage sloth and reduce the incentive to actively seek and keep a job.

Experiments were designed to test the effect of a guaranteed annual income on work incentive and other social variables. In the income maintenance studies, the most sophisticated of the social experiments, there were two policy dimensions: the level of guaranteed income and the tax rate at which income above the guaranteed level was to be taxed.[4] This latter aspect was essential, since in the mid-1960s (and even today) many jurisdictions reduced the amount of welfare by the amount of any income earned, in effect producing a 100 per cent tax rate. These experiments are the most sophisticated ever to be undertaken in social research; since 1970 they have consumed in excess of $150 million.

The failure of these elaborate research projects to resolve the basic hypotheses about the effect of guaranteed annual incomes on labour, supply, and work effort can be attributed to the logistical and ethical issues underlying social experiments. First, the logistics of social experiments outside the laboratory are formidable. The researchers can control only a few aspects of a household's activities. Clearly, many other factors affect willingness to work. In the New Jersey study, for example, it was found that varying tax rates had little effect on

subjects' work patterns, except across different ethnic groups.[5] (In general, ethnicity is a very troubling "variable" in social research because it is frequently a combination of culture, nationality, and race. Indeed, it should not be called a variable at all.)

Also, each household in the experiment was subjected to lengthy interviews designed to produce a complete vector of independent variables to be used in statistical control. But despite careful design, it is clear that this procedure never worked satisfactorily. Attrition of participants prior to the completion of the study, the limited duration f the experiment, and the fact that participants died, divorced, and married during the test period all produced disturbances in the data, quite unlike those encountered by natural scientists.

Ethical considerations are an even more important reason why social research may fail. Researchers must have the informed consent of all participants and must insure that no subject will be worse off as a result of the experiment. These requirements may reduce the participation rate and circumscribe the range of policy variations that may be attempted in an experiment.

The ethical problems confronted by social researchers are illustrated by a recent study that exposed male subjects to violent pornography in an attempt to test whether this would produce increased feelings of aggression toward women. It did. Now the researchers must "deprogram" the participants before returning them to society.

The reactivity of subjects and the logistical and ethical problems inherent in social research make the control exercised by natural scientists and engineers unavailable to social scientists. Indeed, it is possible that this control will never be attained, at least not within the context of democratic traditions. Both policy makers and funders of social research must become more sensitive to the difficulties encountered by social scientists who are trying to understand the present upheavals in the social order. The failure of economic forecasting, which is conducted at levels of sophistication unmatched in the social sciences, should serve as a lesson for us all.

Toward a Research Agenda

It is important to understand that social research proceeds by considering social problems and policy. Although mathematics may advance without reference to current substantive issues and many of its discoveries may never find direct application, the same cannot be true of social research. Although neuropsychologists who experiment on rats that run through mazes (as close as social research comes to the methods of natural science) may be tempted to believe that their work has few applications, they will feel differently when they get their first call from the defence department.

Thus, although there are many methodological problems requiring the attention of social scientists, they will be solved in the course of researching substantive social issues. Furthermore, social scientists must not let the extremely long list of urgent problems that is usually presented to funders obscure the shared concerns that unite social research at this time. Consider three concerns that would be at the top of any list -- technological change, equal pay for work of equal value, and pensions. The basic problem in each of these three issues is the same; it is what economists have called the distribution problem.

Periods of rapid technological change have always redistributed income from the general population to those who own the new technologies. In many instances, those who lose income may not be directly related to those who benefit from technological change but are influenced by the changed economic relationships created by the new technologies. Two areas strongly affected by technological change are manufacturing and agriculture. The mechanization of agriculture, which began in the last century, is now reaching its final phase with the bankruptcy of many small and medium-sized operations using outdated technologies and organizational structures that are incompatible with the economies of scale needed to produce food at competitive rates. In manufacturing, the introduction of microprocessors is having much the same impact on heavy and medium-sized industries that the introduction of large tractors had on farm labour at the turn of the century. Today manufacturing industries are losing workers, partly because of Canada's declining competitiveness and partly because of the economies of scale made possible by robotics.

The essential social problem in this case is the distribution of wealth from the winners to the losers. This problem is only partly a matter for social research. Clearly, political considerations play a part as well, and the current debate, which has been more clearly articulated in the United States, turns on whether the state or the private market will be the agent of that redistribution.

Equal pay for work of equal value is also a distribution problem. First, it is important to note that the comparison of male and female earnings (it is widely quoted that a woman earns only 60 cents for every dollar earned by a man) is irrelevant to the controversy. Earnings are not wages. When these data are subjected to additional analysis, the initial disparities disappear. For example, single women over 30 working full-time enjoy higher wages than do men in the same category. However, when these data are further adjusted for education and experience, evidence of wage discrimination against women begins to appear. The central problem is to invent ways of comparing the wages of men and women, not within the same job classification, wherein disparity appears to be declining, but across different classifications -- a secretary's wages, for example, might be compared with a truck driver's. The problem might seem simple, and certainly there are organizations that claim to have found ways of making these comparisons, but in fact all existing job-rating formulas involve considerable value judgement. Those who maintain otherwise are naive or are trying to win what may be very lucrative contracts to impose their schemes on vast sectors of society.

It is important not to let the technical problem of comparing jobs overshadow the real issue, which is the way job skills are distributed within the population and between the sexes. Equally important is the distribution of work and income within the home. The most inventive and subtle job evaluation schemes and the most energetic government efforts in support of affirmative action will mean nothing if work within the home remains the responsibility of women. Again, distribution is the basic problem.

Finally, there is the problem of pensions. The recent budget announced by the federal government encourages those who can afford to do so to supplement their pension savings using the tax deferral embodied in retirement savings plans. Many people are convinced that the majority of pension plans, and certainly the Canada Pension

Plan, are underfunded. With dependency ratios increasing, tomorrow's work force may suffer under an extraordinary burden. Here the problem is one of intergenerational distribution -- the transfer of resources from the young to the old.

Many other problems can be cast in the distribution mould. For example, nonunionized workers crossing picket lines are pressing for the redistribution of a fixed number of labour positions. When auto company profits increased this year, the unions called for a redistribution of wealth by serving notice that wage demands would rise. Pollution problems represent another intergenerational distribution problem. Finally, the entire North-South dialogue is nothing more than an argument over the redistribution of resources on a global scale.

During the present period of slow economic growth, the central problem for social research will be the distribution of resources. The distribution of gains from technology, the sharing of jobs between men and women, the transfer of resources from this generation to the next and vice versa -- all these issues are aspects of the same problem, a problem of distribution. Social stability will depend upon the creation of a vast range of institutional mechanisms for ensuring the equity of this distribution. It is here that social research faces its greatest challenge over the next few years.

Acting on the Social Research Agenda

This paper has argued that social research is not scientific in the normal sense of the word. At best it may be prescientific. It further argues that most of the current social issues can be seen as aspects of a central distribution problem. What unifies these two themes?

As G. Spender Brown has argued, in any field of inquiry investigators who seek to discover the truth must first draw distinctions.[3] Once distinctions are drawn, comparisons can be made. At the root of the distribution problems cited above are comparisons, which economists often refer to as equity comparisons. Economists have become terribly concerned with demonstrating the impossibility of comparing the welfare of individuals, but the current political reality demands that it be done. Achieving fairness in the workplace, between generations, and among nations depends on it.

But before social scientists can make these distinctions and comparisons, they need to have data. It is the central contention of this paper that no further progress in social research can be expected until attention is given to the production of social knowledge and facts. Quite simply, the inability of social research to advance stems from the lack of reliable information on individuals and households. Some examples may help clarify this assertion.

It is common for social research in Canada to proceed piecemeal with a plethora of small-scale surveys. In most instances, there is no way to compare these studies. Although certain bits of information may be comparable (such as family income), the comparison is valid only if the questions that generated the information are the same in each survey and, of course, if the respondents belong to the same category. The trouble is that studies vary considerably in matters of sample selection and questionnaire design, producing a cacophony of social data.

Statistics Canada expends great energy and resources in collecting census information, yet even this agency, which enjoys a well-deserved reputation as being reliable and consistent, finds the

collection of social data extremely difficult. The spatial unit of analysis (tract) on the census has varied with each survey, definitions have changed, and the need to use two official languages has produced problems with some questions. Ethnicity continues to stymie data collection. While the economic data are perceived as more reliable, some people criticize the fact that the national accounts are based upon Keynesian definitions, and that the consumer price index is aspatial. There are good reasons for not redefining national accounts every 10 years, and the technical difficulties in producing a spatially defined consumer price index are significant, yet the form of the data can confine research considerably.

Finally, consider an example from psychological testing and evaluation. Considerable energy has gone into the development of personality scales that are reliable and valid across various subpopulations. One of the best known of these is the Minnesota Multiphasic Personality Inventory (MMPI), which has been extensively used in the assessment of emotional and mental illness as well as in career counselling. It is a bank of questions that have been extensively researched and generally found to produce comparable results when administered to various populations. In the past few years, however, it has become apparent that its validity is decreasing, partly because language and the situations faced by individuals have changed, rendering the question obsolete, and partly because the cultural context in which the inventory was originally developed has changed. Accordingly, efforts are under way to revise the questions and definitions in order to retune the inventory. This program of revision and retesting is exemplary but, unfortunately, most social researchers denigrate the task.

For the most part "data grubbing," or the collection of original data, is given low priority by social researchers. Certainly economists, who are probably the most negligent in this regard, give little credit to those among them who collect original data.

It is important to stress that social and economic data are difficult to collect. First, cultural and social "drift" such as that observed by those using the MMPI scales make it necessary to redefine concepts and re-evaluate information. Second, some data are particularly sensitive to the interpretation of the researcher (ethnographic data, for example). Finally, the premier data collection tool, the survey, has been running into steadily increasing resistance from the public. This resistance has yet to reach significant proportions in the case of general household surveys, where response rates of 80 per cent are still possible, but in the case of other groups (firms, for example) it is quite likely that the flow of information will diminish. Governments' attempts to reduce paper consumption will also discourage the use of surveys.

There are three things that can be done to improve the quality of data available to social researchers.

First, governments must be persuaded to release administrative data acquired from social programs (unemployment insurance and health commission records, for example). Those opposed to this measure usually express concern about the confidentiality of the data and the cost of undertaking such a release. Researchers also complain that administrative data are not organized into usable categories.

Individual anonymity can be preserved simply by removing all personal identifiers. Residual disclosure — the inadvertent disclosure of a respondent's

identity as a result of his or her singular responses -- can be prevented by aggregation. In general, governments that have released administrative data have been vigorous in protecting anonymity and often aggregate data to the point at which it becomes meaningless. The possibility exists that the data are being screened and aggregated, not so much to preserve the privacy of individuals, but rather to ensure that the information can never be used to evaluate the performance of the department that collected it. However, if social research is to support policy formulation, we must obtain much more refined and useful administrative data. Administrative data can reduce the need to contact respondents directly, thereby largely eliminating the reactivity problem mentioned earlier. Of course it would be better still if governments cooperated with social researchers to develop data that were directly usable in testing and refining various theories and hypotheses.

Second, Canada must make a commitment to the development of at least one major collection of panel data that would run indefinitely. In the United States, the Panel Study on Income Dynamics and the National Longitudinal Surveys are now returning extraordinarily valuable insights into unemployment, education-labour interactions, and so on. The multitude of cross-sectional surveys conducted by Statistics Canada, which are funded by the Social Sciences and Humanities Research Council of Canada (SSHRC), provide useful benchmark insights, but they are altogether inadequate for serious work in causal attribution.[6] Social science may be quite different from natural science, but in both fields the identification of causal relationships is the central task; for this, longitudinal data are essential.

Finally, funders of social research must develop a more consistent approach to data collection. Indeed, as a matter for concern, the collection of raw data easily outranks any of the issues defined as strategic by SSHRC. More attention must be given to the comparability of results across studies. Researchers must be required to demonstrate their ability to collect and store information; all too frequently it is assumed that undertaking a social survey is a routine task, when in fact very few researchers do credible work. By requiring that information collected with its funds be made public, SSHRC has taken an important first step toward improving the situation. But considerably more must be done to create an information base that can be used across separate studies. Greater care must be taken in the adjudication of grants to ensure that the information generated by the study will be of high quality. All too frequently, data collected by social researchers is at best valueless, and at worst misleading.

Only by improving the basic input of social science -- its facts and data -- can social research hope to shed light on the shifting nature of social and economic relationships and make the comparisons and distinctions so basic to questions of equity. Only by radically improving the database can we hope to make any progress on the issue of equal pay for work of equal value. Thus, if we must select priorities for social research, certainly the refinement of raw data and the means by which it is gathered must be given careful consideration.

Notes

1. Wassily Leontief, "Academic Economics," Science (9 July 1982).

2. J.G. Adair, "The Hawthorne Effect: A Reconsideration of the Methodological Artifact," Journal of Applied Psychology 69(2): 334-345.

3. G. Spencer Brown, Laws of Form (London: Bantam Books, 1973).

4. For more information on the Seattle and Denver Income Maintenance Experiments, see Journal of Human Resources 15, 4 (1980): special issue.

5. The New Jersey Income Maintenance Study was one of the first income maintenance experiments conducted in the late 1960s. More information can be found in Joseph A. Peckman and P. Michael Timpane, Work Incentives and Income Guarantees, the New Jersey Negative Income Tax Experiment (Washington: Brookings Institution, 1975).

6. For example, the Census, the many surveys conducted each year by researchers funded by various public and private sector agencies, and, of course, political polls fail to provide much causal insight. A single panel study of 5000 families would, after a few years, provide much more information relevant to both applied and basic research than the totality of these cross sectional surveys.

Quests That Must be Dared, John Meisel, Queen's University

> When a distinguished but elderly scientist states that something is possible, he is almost certainly right. When he states that something is impossible, he is probably wrong.
>
> Arthur C. Clarke

In trying to pierce the veil hiding what lies ahead, we are always confronted by the Heraclitean conundrum: when and how does the present become the future and to what extent are the two intermingled? Social science research on 1 January 2000 will not only deal with problems becoming manifest on 31 December 1999, but will tackle numerous issues that will have been around for some time, most of them for a very long time. Many of the enigmas that challenged Plato, Pascal, Proudhon, Poulantzas, Parsons, or Porter are still unresolved and will be 16 years hence.

One of the differences between the social and natural sciences is the extent to which the two diverge in relation to their cumulative character. It is not intolerably distorting to envisage the physical sciences as creating their storehouses of knowledge by placing one building block next to or above another and moving, sure-footed, from one proven proposition to the next. The social sciences, on the other hand, are generally much less incremental and tend to return to earlier preoccupations even as they break new ground with respect to contemporary issues. The reasons are to be found in the natures of the two kinds of sciences and also in their subject matter. Many of the concerns of the social sciences touch on value systems of society and these are, of course, not immutable. On the contrary, each generation more or less redefines its normative system.

At the same time, problems that are settled by one discipline to its satisfaction may pose acute challenges for another. A striking example is to be found in the field of health care. The medical sciences have made great strides in healing and curing disease, but this massive emphasis on illness and its consequences has led to a neglect of prevention. The latter, which may be of only marginal interest to one set of sciences, can become a focus of attention for others. A non-problem in one context thus becomes a major problem in another. Health care is not only a telling example of the interrelationship among disciplines and of the fact that the completed agenda of one may not satisfy another, it also has a direct bearing on the issues confronting the social sciences as society moves towards the future. I shall return to this matter later.

Before I do, I must emphasize that among the issues requiring social research now and in the 21st century, there will be many enduring preoccupations from the past. It would be interesting to attempt to specify which unfading concerns are most likely to engage social scientists in the immediate future and the next millenium. I shall not attempt this task here, however, and shall concentrate more on emerging and new issues. Still, since the exception waives the rule, I must permit myself one look at a timeless if somewhat parochial issue: I can predict with absolute confidence that federal-provincial relations will absorb the energies of Canadian scholars as long as Canada exists.

Unprecedented problems, or problems that appear in substantially novel form, generally fall into one of three categories. First, there is the

impact of a number of new scientific, technological, and social developments on individuals and society in general. These diverse impacts are certain to create a host of new sociopolitical and economic problems that will claim the sustained attention of researchers. Second, the research infrastructure and research organization will have to be examined and adapted to new conditions. Third, unprecedented efforts will have to be made to understand the appallingly genuine threats now menacing the environment and hence human life itself. The species is in peril: if it is to survive, a better understanding of the threats and, above all, better knowledge of the means available for averting disaster are needed. We must also find out, if we can, more about how these means can be made acceptable.

Effects of New Developments on Individuals and Society

Most of the needed research in the social sciences is prompted by scientific and technological innovation, but some originates in a new awareness of reality. Thus the need to take a new look at health care is prompted by the realization that the physical condition of the aggregate of individuals in a society may depend at least as much, and possibly more, on nutrition, environmental factors, and exercise than on the success of combatting individual diseases. It is also known, of course, that for individuals, genetic factors are critically important. Awareness of these matters may have been facilitated by technological innovation in data gathering, storing, and analysis, but the main reason for our becoming conscious of this aspect of human experience is that some perceptive individuals have drawn attention to the problem, often despite tacit or overt opposition from various established intellectual and other vested interests. As a result, we now know that considerable research is needed on nonmedical factors in health.

Two major facets of the problem claim our attention: the particular factors in the nutrition, environment, and behaviour of individuals that relate to health, and the manner in which these factors make themselves manifest. But equally important is the question of how to translate newly gained knowledge into improved health conditions and how to deal with the economic implications. Not only will there be immense costs involved (followed in the long run, no doubt, by massive savings), but also the very successes of tackling the health issue are bound to present society with new problems to be resolved: a substantial change in the demographic pyramid, adjustments in the training of doctors, and in the delivery of health care, for instance.

The emergence of health care as an issue urgently requiring our attention on a vast, cross-disciplinary as well as on a pure and applied level came about as the result of new insights rather than technological change. Other problems are arising from awakening consciousness: the redefinition of the role of women in society, for example, will affect virtually all aspects of our lives and will be accompanied not only by benefits but also by direct and indirect personal, social, and monetary costs. We have done very little to examine these costs and prepare for them.

However, as I mentioned earlier, a large proportion of the pressing new research issues confronting us can be traced directly to scientific and technological innovation. Three areas in particular are revolutionizing life and are producing large numbers of problems urgently in need of scrutiny: biotechnology, space technology, and information technology.

Genetic technology raises the most difficult ethical questions, concerning the genetic manipulation of the human species on one hand and of plants and animals on the other. It is, of course, open to argument whether the social sciences have much, if anything, to contribute to moral issues. I believe that they do, but even if this were not so, they could not escape the responsibility of tracing the possible consequences for society of various applications of biotechnology. Attention should be paid to the social and political mechanisms available to ensure that the application of scientific breakthroughs meets desirable societal ends. Under certain conditions, the personalities and physical condition (including factors determining one's health, for instance) of individuals could be manipulated by the application of the new knowledge and the new methods of biotechnology.

Information technology also raises questions about the future of the human species.[1] It is possible that the widespread use of telematics in education, information dissemination, and the numerous transactions required in the process of daily living could ultimately change the respective importance of the left and right hemispheres of the brain and consequently the human personality. Language also is undergoing a metamorphosis as the result of the emergence of the computer society, with consequences for thought and for social interaction. All these and related phenomena pose tantalizing challenges to social science.

The possible impact of the new technologies on what one can loosely term "human nature" is only one of the numerous dramatic consequences crying out for systematic study. Developments in space technology and in telematics are likely to change the character of communities and the manner in which individuals define themselves in relation to others. They may enhance both universalism and particularism in the process of self-identification and create entirely new sorts of reference points for Canadians. The political and social consequences could be far-reaching and are, for the time being, totally neglected by serious scholars.

Educational processes and institutions are also undergoing some fundamental transformations. Not only are the mental processes of children who use computers at school probably being changed by the new hardware and software and the new teaching methods, but there is a great likelihood that the use of printed sources of information will undergo major revisions and, indeed, that the whole educational system may ultimately be transformed. Schools, colleges, and universities as we know them may no longer provide the most effective educational services and may have to be dramatically reformed. The consequences are so profound that they must be studied not only by educators and specialists in educational administration, but equally by intellectual historians, sociologists of knowledge, experts in political socialization, and other social scientists. Many other facets of life are being altered, sometimes radically, by the information revolution. Employment levels, the skills needed, spatial arrangements of manufacturing, and white-collar jobs are all being altered. And they are only a small fraction of the new developments that require study.

There is also the political dimension. It is obvious that, for reasons only partly related to technological change, the political process in Canada leaves a great deal to be desired. Government is no longer able to cope with such fundamental socioeconomic problems as inflation, horrendous unemployment, fiscal responsibility, or

the accountability of its agencies to parliament. Both political processes and the management of the public household require a far-ranging, questioning reanalysis. This must be undertaken bearing in mind the profound societal changes associated with the information revolution and its consequences for the socialization, work ethic, sense of community, and other values of the population. The Macdonald Royal Commission is presumably looking at many of these matters. Its report, and the large number of research studies it is producing, will shed some light on these questions, but if Canada is to reap the maximum benefit from this exercise, a great deal of further research will have to be done on the basis of the Macdonald studies and complementary to them.

Research and Its Infrastructures

The approach, nature, quality, scope, and infrastructure of social science research in Canada are themselves pressing candidates for research. Two aspects call for special attention: (1) the nature, scope, and methodologies of scientific inquiry, and (2) the structure and financing of social science.

With respect to the first aspect, the key word seems to be "linkages." Social science, without abandoning its conceptual and methodological rigour, must try to relate or to become relatable to at least three phenomena. First, whenever possible, it should allow for the expression of ethical and normative concerns. The convenient but misleading cop-out, that social science is value-free, needs to be confronted head on. The values leading to and underlying any inquiry should be articulated, whenever possible, and the findings linked to their relevant ethical implications. Second, given the growing interrelationships of human experience and the artificial fragmentation of the sciences, it will be important to establish linkages not only among the various social sciences themselves but also between them and other disciplines. The problems of health care noted earlier provide a good example. Finally, and this may be the most controversial suggestion, social science should, if at all possible, allow for action to be taken as the result of it. Links need to be provided for, in other words, between social scientists and those implementing policies informed by their insights.

Some of these views are, I know, heretical and dangerous. They need to be expanded, clarified, and refined, and they are offered without any wish to disturb the inner logic and scientific purity of research. They are prompted, however, by a nagging frustration with the widespread failure of the findings of social research to inform action and to be utilized effectively in efforts to improve the human condition. We are here to talk about research priorities, and I propose that my recommendations become the subject of scrupulous analysis and that they be inscribed high on the research agendas of the relevant disciplines.

Two additional points need to be raised before I consider the structure of social science. One concerns the tension between universal and parochial reference points. First-class inquiry cannot thrive in a ghetto. There is no doubt that Canada's scientific activities must be linked to those of other countries, particularly those that have become leaders in our fields. At the same time, the national dimension cannot be denied. The nature of problems, their manifestation, and the researchers' intellectual context are all related to where one is placed and who one is. Although I do not want Canada to remove itself from the international community of scholars and researchers, I do wish to point to the need to retain Canada's own cultural links and not to

neglect problems relevant to its own condition.

It is not far to move from this argument to a consideration of mission-oriented research and the appropriateness of the state inviting its researchers to tackle problems in certain areas. I do not object to this, provided that adequate research resources are available to scholars who wish to follow their own muse and their own whim. The matter can be put more strongly: a society, through its government using appropriate instruments, must ensure that its scientific efforts address the issues that need to be resolved. Is it essential that such "goal-oriented" inquiry be undertaken only by researchers working for governments or their institutes or is it possible and even desirable that these explorations be undertaken by those toiling in the "free" sector of the universities and the private sector think tanks? Provided that other research does not suffer in consequence, independent scholars, investigating questions identified as important by governments, can accept funds for this purpose, particularly when the award is made through the adjudicative process followed by respectable granting bodies.

A closely related aspect of social research requiring study is the question of what is the most appropriate infrastructure for conducting it. What is the best mix of public and private efforts, in-house and outside contracts, provincial and federal initiatives, and so on? This array of options is astounding to someone who began his academic life in 1949 when there was virtually no social science research being done outside the universities, a few government departments, and, now and then, a Royal Commission. There was no Social Sciences and Humanities Research Council then, no Canada Council, no private research centres, no institutes à la C.D. Howe, the Institute for Research on Public Policy, or the Canadian Institute for Economic Policy,[2] no Canadian Institute for Advanced Research, and no provincial interest of any sort in social science. Canada has come a very long way, but social scientists are in no position to evaluate the change. I know of no study that has successfully analysed and appraised the historical evolution, the nature, and the effectiveness of the present structures and arrangements. Here then is a major research problem: to examine the effectiveness, from the viewpoints of several criteria, of the manner in which research in the social sciences, and research generally, are organized.

Social scientists must assess the respective and combined performance of our research establishments operating under the present division of labour among them. Insofar as the government is the most important and wealthy player (a fact that in itself calls for evaluation), its practices in this regard call for special attention. I am not thinking so much of the Social Sciences and Humanities Research Council as of the manner in which various departments and agencies go about defining, contracting, and evaluating research. How well is society served by this or by the widespread practice of awarding research contracts to former public servants who have set up consulting businesses? Do government departments adequately carry out in-house research and handle outside contracts?

It would be immensely worthwhile to evaluate the present financing and organization of social science research and map out alternative arrangements under various assumptions. The government spends enormous sums on research in a great variety of ways. However, little or no effort has been made to evaluate each and to determine what would be the best configuration for various purposes. What are the relative

advantages and disadvantages of relying on the Social Sciences and Humanities Research Council; making direct grants to universities; conducting research within a department or agency; creating bodies like the Canadian Labour Market and Productivity Centre; supporting institutes like the Institute for Research on Public Policy or the Canadian Institute for Advanced Research; sending individuals on personal research missions abroad; or obtaining the required knowledge through royal commissions or other committees of inquiry? All of these means are being used constantly, some of them in a distinctly questionable manner. Some expenditures appear to have had their origins in the wish to respond to the claims of certain single-issue interest groups, the desire to gain partisan advantage prior to an election, or the inclination to reward or place away from Ottawa a public servant who might, for whatever reason, benefit from a change of air.

It would be desirable to determine in a rational, explicit and coordinated way which processes of and structures for inquiry are most useful and when each ought to be employed. Room must be left for ad hoc decisions by specific departments and agencies but this could be allowed for in a global science research strategy. Such an overall plan would, I hope, recognize the central role and enormous utility of the Social Sciences and Humanities Research Council.

We must also ask whether the present set-up of the three main research councils is satisfactory and whether it sufficiently encourages the cross-disciplinary inquiries needed to address many current problems. What are their positions on independence and accountability? Are they adequately funded for the tasks before them? Is the respective allocation of resources appropriate? Have successive governments recognized the critical importance of social science research to the wellbeing of the country?

It was depressing to find out when I was in the government how oblivious most civil servants were of the relevant intellectual life and output of the academic community. A number of things can be done about this and some schemes are actually in place to remedy the situation. We need to explore these, build upon, perfect, and apply them. Both sides have much to learn from one another.

This last issue touches on a broader question of the greatest importance: does the public and do the decision-makers recognize the key role that social science can play in the life of a contemporary community? Are they aware of the benefits that can accrue from the presence of good research and of a well-functioning research community? It is my impression that both the public and government by and large underestimate the utility of most social sciences with the possible exception of economics. However, I also think that social scientists sometimes overestimate their potential contribution.

Studies are required of these and related questions, not least among them of whether social science is, in fact, as beneficial as I am claiming. If not, what is the cause and is there a remedy? Related to all this is the question of how one or more disciplines can ensure that the general public and relevant decision-makers are aware of the potential contribution of social science and also of its problems -- its triumphs as well as its failures. In this connection, efforts toward adequate auto-criticism and policing could protect the disciplines from the devastating effects of pseudo-science and charlatans.

Survival of the Species

The phrase "survival of the species" may appear overly dramatic, but I am not at all sure that it is. In looking at the insane arms build-up by both the Soviet Union and the United States and their respective attitudes to détente, the proliferation of nuclear weapons throughout the world, the incipient arms race in space, the ravages visited on the environment, the obscene waste encouraged in parts of the world in contrast to the famine and poverty elsewhere, the growing gap between the so-called North and South nations, in thinking of these realities, we cannot ignore the possibility that we are coming to the end of a cycle. Civilizations have declined before and many have disappeared. Present conditions only differ from those prevailing in the past in that the consequences of the follies of part of the world are likely to engulf the rest.

One of the most arresting features of the present state of affairs is that the morbid result is widely known of our inability to cope with the easing of international tensions, with the ever-growing population imbalance in parts of the world in relation to the food supply, and with the havoc being inflicted on the environment. But despite this knowledge, we seem unable to do anything about it.

Canada cannot alone hope to find out why we seem so closely to resemble the lemmings and what might be done to reverse this tendency. At the same time, it little behooves us to throw up our hands impotently and to let events take their course. The Canadian government is, in fact, setting up a centre for the study of peace issues (the Canadian Institute for International Peace and Security), but although this is praiseworthy, it is hardly enough. Anyone thinking about research priorities must accord the survival issues an extraordinarily high place. Both world-wide and Canadian dimensions need to be investigated. In addition to the substance of the issues, we must focus on the processes needed to cope with them. We need to find ways of being able to act, alone and with others, to avert disaster and, if at all possible, to learn and teach others how the present impasses in so many critical areas can be broken.

You may consider my position childishly idealistic and utopian. We know, you say, why Canadian governments are tolerating the continued emissions by industry creating acid rain, and why the Americans, for their part, are unwilling to do what is needed. We know why the Soviet Union and the United Stated cannot agree. So why waste time on bootless research? To such questions I reply: because we do not know enough either about the full reasons or about what might be done to challenge them. Much more knowledge than is available now is needed about processes of accommodation and conflict resolution, about improving political institutions and practices, about converting widely held public attitudes into policies, about informing citizens of the realities of social, economic, political and moral problems, and about creating conditions in which the public good will be supported even when it conflicts with individual personal gain. Most importantly, we need to learn, through research and practice, how insights about these and other matters can be applied in the real world.

These, more than anything else, are the issues requiring social research as we move toward the year 2000. "...The only hopeless quests are those we fail to dare."[3]

Notes

1. For a fuller development of the points made here see J. Meisel, "Science, Communications and Culture: Will the Twenty-First Century be Canada-Friendly?" in Transactions of the Royal Society of Canada, Fourth Series, 22, and J. Meisel, "'Newspeak' and the Information Society," Archivaria 19 (1984-85).

2. The one notable exception is the Canadian Institute for International Affairs.

3. Amanda Cross, The Theban Mysteries, New York, Avon, 1971, 171.

Are the Social Sciences Future-Shocked?, Kimon Valaskakis, President, GAMMA Institute, Professor, Department of Economics, University of Montreal

A decade ago, Alvin Toffler introduced into the common vocabulary the expression "future shock" to refer to the increasing sense of alienation that is created when social institutions do not keep up with change. A society that is future-shocked is not only incapable of coping with its future but, perhaps more importantly, with its present. This inability to comprehend the present stems from a widening chasm between, on the one hand, the forces of objective change and, on the other, the evolution of institutions, physical or moral, that people set up to govern their lives. One type of institution is concerned with the pursuit of learning and within it is the social science establishment. An important question to raise in the context of this conference relates to the readiness of social sciences to meet the possible and probable challenges of the present and future. This ability leaves much to be desired and considerable improvements must be made if this dangerous chasm is to be bridged.

The issues and problems now dominating university-based social science thinking virtually ignore the paradigm shifts occurring or about to occur in society. Moreover, present relations between university and society perpetuate divisions that rob society of the services of highly-trained university talent and lead that talent to waste itself on trivial issues. Both problems are related and both are surmountable, but they must first be recognized as real.

Present and Future Paradigm Shifts

Ever since the publication of Thomas Kuhn's seminal book, The Structure of Scientific Revolutions, the concept of paradigm has been greatly used and abused by different authors. Perhaps its most important contribution was to suggest that there is an intellectual foundation underlying specific theories, ideologies, or theses that reflects an implicit or explicit covering law or world-view. When this world-view changes, not only do the theories generated by former world-views become obsolete, but the very questions they had attempted to answer become irrelevant.

Of course the notion of a world-view itself must be used in a relative sense, since there are hierarchies of world-views, depending on the context. Thus in economics we can have Keynesian versus neo-classical sub-paradigms, each complete with its own theories, theses, and countertheses. At a higher level, both the Keynesian and neo-classical subparadigms fit into a larger or capitalist paradigm, itself opposed to, say, a Marxian one. The capitalist and Marxian paradigms may in turn belong to an economistic super-paradigm that is based on an explicit or implicit assumption that human beings are rational and materialistic, opposed to a noneconomistic superparadigm, which stresses noneconomic values such as culture kinship or religion. (Much of the development debate pitting economists against other social scientists revolves around this issue.)

In general, to avoid the confusion that would result from an undisciplined use of the paradigm concept, I suggest the following operational description: whereas a theory is a series of answers to a set of underlying questions, a paradigm defines both the set of underlying questions and the methods and procedures to be used in answering them. Therefore, paradigm shifts may render large bodies of theory completely irrelevant. To state it strongly, "there

can be no good answers to bad questions." Paradigm shifts change the questions and make former answers to former questions meaningless.

There is increasing evidence that many of the questions that academics are addressing in the university milieu fail to reflect the emerging paradigmatic shifts. The following list shows three candidates for paradigm shifts that receive much greater attention outside the halls of academe than within them. The list is by no means exhaustive.

1. New Concepts of Work/Employment Wealth and Leisure
    - economic growth without job creation
    - ephemeralization of the concept of wealth
    - blurring of the work/leisure dichotomy
    - growth of the informal economy
2. New Interfaces Between the State and the Private Sector
    - blurring of the political spectrum and the decline of ideology
    - new roles for the state
    - new responsibilities for the private sector
3. Human-Centred Development
    - international trends in favour of "human-centred" development
    - growing relevance of cultural, social, and political relativity
    - growing resistance to "maldevelopment"

New Concepts of Work/Employment, Wealth, and Leisure

The driving force behind the emergence of new concepts of work, employment, wealth, and leisure is the pace of contemporary technological change. The advent of microelectronics, itself the product of a series of breakthroughs in telecommunications and computer science, is fundamentally changing the production function (defined as the technical relationship between productive factors needed to produce a given output). Important substitutions of capital for labour are occurring that continue a trend started with the first Industrial Revolution (1750-1820). At that time, energy-capital in the form of steam engines began to replace certain forms of animal and human labour. Although horses did not survive as industrial factors of production, human beings did by moving to manufacturing. In the second Industrial Revolution, occurring a century later (1870-1930), electricity and internal combustion engines, again a form of energy-capital, began to take over certain jobs held by human beings. But once again, job destruction was more than matched by job creation in, among other fields, the service sector.

In the contemporary "third Industrial Revolution," a new form of capital is making its appearance: information-capital. The cybernetic machines that make up today's computers present a much more ominous challenge to human labour. The ability to substitute capital for labour can now be envisioned in the previously sacrosanct area of human mental activities, perceptual, conceptual, and motor -- what we commonly refer to as intelligence. If one accepts the hypothesis of quasi-intelligent computers of the fifth generation (a hypothesis taken very seriously by American and Japanese computer scientists and politicians, yet generally ignored by many social scientists unfamiliar with the technology and its potential), then the use of artificially intelligent computers and robots in

economic activities is likely to be extremely widespread.

The pace of technological change in microelectronics and its derivative industries raises the possibility of a hitherto unknown situation: high economic growth fuelled by the immense productivity increases associated with the technology, yet without significant job creation. Yet jobless growth, as it is usually referred to, does not appear prominently on university curricula. On the contrary, mainstream academic economic thinking remains well within the official paradigm that growth automatically bring jobs, because this is what has happened in the past. This type of unquestioning application of historical induction reminds one of Bertrand Russell's tenth chicken paradox. (On a chicken farm one chicken is slaughtered every day, but the tenth chicken is not worried, because it has nine days of survival behind it.) Why should the future not be like the past? (It also reminds one of the daredevil who jumped from the top floor of the World Trade Center claiming he would emerge unhurt. On his way down, upon seeing his associate at the window of the third floor, he waves and exclaims cheerily, "So far, so good!")

The case that, for good or for ill, jobless growth is likely, is also based on history -- but this time on a more reasoned use of induction. What happened to agriculture after mechanization may well happen to the economy, as a whole, after artificial intelligence. Whereas it took close to 100 per cent of the labour force to feed the population two centuries ago, it now takes 3 per cent, not only to feed the 100 per cent, but to have an exportable surplus. If a similar situation occurs as the result of widespread use of fifth-generation computer-assisted design and computer-assisted manufacturing (CAD/CAM), then the economic system as a whole will be able to produce a given gross national product with but a fraction of the labour force. The entire economy will go the way of agriculture: considerable wealth creation without higher demand for labour services.

The new realities require careful rethinking of the work/leisure, employment/unemployment dichotomies. In particular, the growth of the informal economy (an area insufficiently monitored by the various social science departments of universities) would require greater attention. There is a considerable body of literature on all these problems, but they tend to emanate from government or private consulting firms and few have the imprimatur of academe. By leaving avant-garde thinking to the university periphery, academic researchers do not fulfil the potential for which their training has prepared them.

A problem related to the employment controversy is the distributional impact of the new methods of production. Will the surplus labour live off the active workers or be marginalized by them? If the former, then the economy could be moving into a new leisure-class syndrome, reminiscent of Thorstein Veblen's analyses. If the latter, then the large body of marginalized, unwanted labour could rebel. However, if the distribution problem can be solved concurrently with the production problem, then the liberation of humanity from toil by scientific progress may be around the corner. One way or the other, the distribution question is central to the debate.

What about the changing nature of wealth itself? The concept of wealth has undergone many paradigm shifts. For the mercantilists, wealth was precious metals. For the physiocrats, it was food and other agricultural produce. For Adam Smith, it was manufactured

goods in addition to agriculture and mining and forestry. Modern capitalism has added services to that list, although the socialist countries of Eastern Europe still resist calling services anything more than parasitic activities supported by true material wealth, which is produced on the farm and in the factory.

Today, wealth is taking on new meanings. For example, Montreal fans pay anywhere from $40 to $1000 to see Michael Jackson perform for three hours at the Olympic Stadium. What exactly is Michael Jackson producing, other than a fleeting psychological sensation? However, to the person experiencing it, it is wealth. What, for that matter, is created by a televised hockey game? Again, the utility created is in the mind of the viewer. It is an abstract psychological sensation. The ephemeralization of wealth and its increasing subjectivity require fundamental analysis at the intersection of the disciplines of psychology, economics, anthropology, and sociology.

New Interfaces Between the Private and Public Sectors

An interesting by-product of the turbulent environment created by technological change and the social response to it is the acceleration and deepening of a process once described by Schumpeter as the essence of capitalism: creative destruction. The destruction is creative because it generates change, but the process produces winners and losers. Limiting the gains and cushioning the losses (a process not only ideologically accepted by left and right but probably inevitable in today's closely interdependent society) raises the question of the optimum type of government/society interface.

The starting point is a paradox. Recent trends toward deregulation, privatization, and the global power and influence of large multinational corporations weaken governments. The balance of power seems to be shifting away from the public sector. Yet the turbulence engendered by rapid change could increase government responsibilities. This paradox, namely that governments face a situation in which they have less power but more responsibility, generates fundamental problems (such as large deficits) that will have to be dealt with. Should the state regain more power by adopting a dirigiste role (taking its cue from successful Japanese, French, and Austrian public sector/private sector partnerships), or should it shrug off some of its responsibilities and hope the private sector will take them on? The latter route implies an increasingly socially responsible private firm maximizing not just its profits but the welfare of its employees, protecting the environment, refusing to lay off surplus labour, and so forth. The former implies that Japan Inc. will compete with United States Inc. or Canada Inc. Government dirigisme would, in that case, be maximized.

In either case, paradigm shifts are probable and intensive research is needed. Again, one will find that the most innovative research will probably be found in confidential, privately commissioned reports, while the mainstream academic journals look elsewhere.

Human-Centred Development

Perhaps the social science area requiring the most fundamental research is the development paradigm itself. The evolution of ideas at the North American as well as the international level seems to demand a new comprehensive theory of development, one centred on the human being and his or her aspirations. There are many precursor events and seed ideas pointing in that direction but the grand synthesis is yet to come.

From the evolution of Third World-oriented development theory come three ideas. First, economic growth is not enough to ensure societal development. Dialogues between cultures will yield subtle meanings for what development is and is not, more so than the usual simple indicators. Second, the opposite of development is not its absence but a reverse process known as "maldevelopment." The pathological extremes of maldevelopment could take the form of underdevelopment (insufficient satisfaction levels for material needs) or overdevelopment (oversatisfaction of material needs creating unsatisfied nonmaterial needs). Third, development is a global process. The underdevelopment of one part of the world may be related to the overdevelopment of another. The earlier notion, that the Third World has but to imitate the industrialized countries to become "developed" is now strongly challenged.

From futures-oriented development theory comes a series of hypotheses. First, there is the hypothesis that the industrial era is over and that society is moving toward a postindustrial society (see, for example, Daniel Bell, The Coming of Post-Industrial Society). The thinking here is interesting but insufficiently developed. The negative definition of postindustrialism (that is, what it is not) is much more persuasive than the positive. It is easier to describe what society is moving away from than what it is moving toward. No-one knows what the new paradigms will be. Alvin Toffler's Third Wave divides the world neatly into "third wave" versus status quo: everything that departs from the status quo is "third wave." This is tempting but, upon analysis, quite superficial. Marilyn Ferguson's The Aquarian Conspiracy attempts to define the new paradigm and so does Willis Harman in The Coming Transformation. Jean-Jacques Servan-Schreiber talks of a new world order in Le défi mondial and Yoneji Masuda extols the virtues of a computer cornucopia in The Information Society.

Admittedly, not all these essays are carefully thought out and some are quite superficial. They do, however, tackle live issues. They talk, directly or indirectly about human-centred development and discuss in detail what the French call "des projets de société." Normative thinking about desirable futures is becoming an increasingly relevant intellectual activity. Yet once again, such activity will exist at the periphery of academe and be denied entry at its centre.

The University/Society Interface

That society is moving toward new visions of the world is evident. Why is it that the repository of knowledge, the university, is not at the forefront of this movement? Part of the answer might lie in the nature of the interface between the university and society, especially in the social science area. This interface may be usefully analysed in terms of two issues. The first is the rigor versus relevance debate, which refers to the previous section's discussion and raises the issue of the university's paradigm itself. The second relates to the regeneration of the internal curriculum of the university in the face of the emerging societal challenges.

1. Relevance vs Rigor (Mortis)

   - The danger of increasing mutual marginalization between the university and society
   - Increasing competition in teaching and research from non-university groups

2. Adjusting the Internal Curriculum to External Challenges

   - The need to reward interdisciplinary work (at present it is tolerated, not rewarded)
   - The future as an academic discipline: The need to integrate a scientific approach to the future in the university curriculum

Relevance versus Rigor (Mortis)

An important and worrying trend is the separation of university and society because the university has chosen to barricade itself in its ivory tower and to judge its work by internal criteria that do not relate to the external expectations of society. The result is that outside university circles and especially in the social science fields, the adjective "academic" has a distinctly pejorative tone. It connotes vague intellectual gardening and long papers that end only by suggesting more research. The papers are rigorous but it is a form of rigor mortis. For instance, perusal of the major economic journals that determine orthodoxy in the field will yield few insights into the solution of today's major problems. Social scientists in general have become sufficiently adept mathematicians to enjoy the elegant beauty of a formal theorem even when they know that it cannot be applied to real situations. The need to explain has given way to the desire to produce superb models that are self-contained, with impossibly heroic assumptions and corollaries that have no practical applications. This is reminiscent of Einstein's famous dictum on the nature of geometry. "Insofar as geometry is about experience, it is uncertain. Insofar as it is certain, it is not about experience." The penchant of academics is to choose certainty over experience.

The abandonment of relevance at the university has had two effects. First, state-of-the-art research has moved to industry and government. The university is no longer at the forefront. Second, state-of-the-art teaching, by definition a comparative advantage of universities, is also slowly moving to industry and government. Crash courses, organized by multinationals or government departments under the generic name of management development, deal directly and expertly with key issues of the day. The faculty for such courses may be university personnel transplanted from the classroom, but those involved are likely to be peripheral, not mainstream, within their universities. The management development centres of large multinationals now possess mini-campuses complete with full-time faculty. These will increasingly rival established universities as centres of teaching excellence.

Adjusting the Internal Curriculum to External Challenges

There are two principal reasons why it is likely that the university will continue to isolate itself unless it reforms its internal modus operandi. The first has to do with the internal reward structure. The second has to do with the university's failure so far to integrate the study of the future as an academic discipline.

The internal reward structure of the university pays lip service to interdisciplinarity, yet really only rewards monodisciplinary work. Promotion committees are usually departmental. Most disciplines have a list of approved journals in which one should publish before one can be promoted. (To complicate matters, the approved journals of one discipline may be considered mediocre by others.) Hence, to survive, one must take the monodisciplinary route, at least until the full professorship. In addition, academic research grants tend to be organized

according to disciplines. Applications to the Social Sciences and Humanities Research Council that transcend disciplines tend to be refused, by and large, because they are evaluated by monodisciplinary teams. The net result is to orient the researcher toward the orthodoxy of his or her discipline and away from relevance, even though few problems in the real world are confined to the arbitrary limits of a single discipline.

The second internal failure is the exclusion of the study of the future as an academic discipline. Future studies departments within universities are rare. They tend to emerge only in the more obscure colleges. Prestigious universities, at least in North America, shy away from speculative studies. By doing so, they render the futures field even more speculative, since it cannot benefit from constructive academic criticism. The result is that most forecasting is done outside the university milieu at places such as Stanford Research Institute, Boston Consulting Group, Rand Corporation, Battelle, the Organisation for Economic Co-operation and Development, or the strategic planning departments of major multinationals and government departments. The university prefers, in McLuhan's celebrated expression, to act as the "rear-view mirror" at a time when forward-looking is crucial. The result: marginalization.

Conclusion

The principal conclusion of this paper is that the social science establishment, in Canada at least, is insufficiently prepared to make a useful contribution to the management of turbulence, which is likely to be the leading macroproblem in North American and probably global society for the next two decades. The main reasons for this are:

- the lack of in-depth university-based studies on present and emerging paradigm shifts (the examples outlined in this paper are but the tip of the iceberg; an exhaustive list of potential paradigm shifts is likely to be much longer);
- the paucity of studies on emerging new social orders that transcend traditional capitalism and socialism and are based on the emergence of new interactions between government and society;
- the dearth of university-based studies on normative visions of the future and alternative "projets de société";
- the mistaken sacrifice of relevance in favour of excessive rigor (elegant answers for meaningless questions are preferred to inelegant answers to good questions);
- the promotion and reward structure within universities that does not reward either interdisciplinary or futures-oriented work.

The ensuing marginalization of social sciences results in reduced access to funding, a general perception of softness and vagueness vis-à-vis the so-called hard sciences, and an inability to give sound advice to decision makers in both the private and public sector.

By re-establishing bridges with the real world, along the lines outlined in this paper, the social science establishment could regenerate itself. The mental discipline involved in writing a PhD thesis and publishing scholarly articles may then be harnessed for use in the public interest. But a potential misunderstanding must be avoided here. The university should not become a technical school, a sort of glorified

Cegep. Its time-honoured independence and perspective should be maintained. Ultimately, education will still be what one famous British scholar called it: "what remains when you have forgotten everything you have learnt at school." Education is indeed a residual, a discipline of mind, perhaps ultimately a contentless approach to problem-solving. However, when there are pressing and fascinating problems to be dealt with in the real world, it is not only the privilege but the civic duty of the highly trained university minds to bring to bear their expertise for the public good. This is the supreme challenge of the social sciences in the last decade and a half of the 20th century.

CONCLUDING REMARKS

William E. Taylor, Jr., President, Social Sciences and Humanities Research Council

Concluding Remarks on the Conference

Let me preface this paper with two introductory caveats. First, I am not speaking as the president of the Social Sciences and Humanities Research Council or on behalf of that agency; that would set a different agenda altogether. Instead I speak for myself, as one who has been both a bureaucrat and a researcher. Second, you should be warned that this paper has been rewritten several times throughout the course of this conference. This writer's task is rather like that of an archaeologist who tries to map an archaelogical site that is still moving.

At the outset, let me offer one image, hyperbolic but perhaps indicative: there exists in the social science community an eloquent, devoted, and distinguished rearguard, harking back to a golden age that never was. There they stand, like Napoleon's Imperial Guard at Waterloo, grand, tragic, and with a bravery born of conviction, experience -- and fear. Trapped by their own symbols, they still protect the Emperor even though Europe has already obliterated his empire. (Ah! The purple prose of analogy.)

This is not the time to flatter you with a catalogue of the profound, diverse, and fundamentally important contributions of the social sciences in Canadian life -- you do not need me as an ingratiating fonctionnaire. Instead, I would like to go over with you what seem to be some key issues emerging from this conference.

Like many of you, I puzzle over the scant credit -- and funding -- we get for social research. Remember the story in which Alexander asks Diogenes, "What can I do for you?" and the old man replies, "Get out of my light"? Even though scholars have always hoped politicians would get out of their light, they have also searched through history for patrons to buy the candles.

It is primarily government, the federal government, not industry nor the unions, that concerns itself with funding social sciences. However, although business people seem reluctant to fund social science research, we cannot assume that they do not use the results of social science research. They have made In Search of Excellence a best-seller and spend millions of dollars every year on grid training. Business leaders, despite campus myths, are neither stupid nor illiterate -- they eagerly seek anything that will give them a competitive edge. Perhaps they still suspect that social scientists only want to talk about Zuni kinship or small group sociology when they want to hear about corporate culture.

But back to government. When I say government, I really mean "the people," and it is "the people" who have difficulty understanding the value of social science. They happily pay for thousands of researchers to look for a cure for cancer, but seem unwilling to pay for 100 researchers to look for a "cure" for crime or for better means to control it.

As social science research budgets grow, they attract attention, concern, and questions. Social scientists no longer ask only for light and bread and water -- and computer time. They really do need much more, but the larger budgets invite scrutiny of the researcher's working world and questions of relevance, communication, and accountability -- at least when governments or businesses are providing the financing.

If we do not want to end up sharpening our own pencils, if we want to encourage better students, then we must understand these clients and cooperate with their legitimate goals too.

Given our subject matter, we as social scientists often have an uneasy relationship with government. As others have so well expressed at this conference, we deal with pervasive, important, sensitive, and complex topics, and a bizarre abundance of change. Social scientists can so often be "bad news bears," producing gloomy Conference Board forecasts or Economic Council reports, or studies on racism, child abuse, international relations, Native people, or aging. But, although we provide no quick solutions even where quick decisions are required, our contributions justify optimism because we contribute to an understanding of the enduring human problems that governments and other institutions face.

Too much social science thinking about our external relations is in simple dichotomies. But if one recalls the rules of taxonomy, one will remember that imprecise dichotomies lead to fuzzy thought, bad conclusions, and futile confrontation. There are many dichotomies, but the one I live with daily is that between academe and government.

SSHRC faces this dichotomy at every one of its Council meetings. What do social scientists owe directly to the public that pays them? Who is best qualified to define public or scholarly needs? Will the collective wisdom or instinct of the scholarly community produce the right decisions? Is some direction needed? This conference fills me with yet more questions even while it offers diverse, but too often partial, answers to many.

Where have all your contributions to this conference led me? Let me offer a few conclusions -- more tentative than they sound -- but which echo some of the recurring themes in your discussions and papers.

Of course I believe in independent research -- after all, as an Arctic archaeologist I have that bred into my bones. What could be less relevant, less utilitarian than Arctic prehistory? Yet papers on Arctic archaeology and ethnohistory were vital to the Labrador Inuit Land Claims Document.

Overall, John Meisel has already said much of what I might have said on strategic research. Unlike some, I sense that the greatest protection for independent research lies in high-quality strategic research, provided that "strategic" is defined in a broad and flexible way. Casting strategic research as bogeyman has been a revealing and damaging error, one made less bitterly by academics in other areas. In any case, it seems that the battle over strategics has eased somewhat with the experience gained since 1981, and with greater awareness of its role.

It is easy to agree that theoretical and methodological work can be done in strategic research -- that "service research" can be seminal. And I wholeheartedly agree with Vaira Vikis-Freibergs that social scientists have the ability to make splendid contributions and would do more and better once they have studied and resolved their own problems, even if they are subject to fierce time pressures.

Others have suggested that the best social research often comes in a strategic area when researchers work under the pressures of social and political realities. Strategic research can also be very exciting and at least as much fun as other types of research.

Much, of course, depends on the excellence of the individual scholar, and I do lament that the topic of excellence of individual scholars has been rather avoided at this conference. Recall Ken Prewitt's point that talent flows to disciplines when they raise consequential and compelling research questions.

Personal experience has convinced me of the worth of research institutes or centres, especially for strategic research. My conviction stems from several reasons that others have already noted, but it is also based on the fact that the strategic/independent research dichotomy is taxonomically inadequate and questionable in terms of the research process. I am not even convinced that there really is a sound separation in terms of SSHRC funding; a substantial amount of strategic research is funded under our independent research grants program and vice versa. Research is not, in itself, strategic. Knowledge is -- insight, understanding, and explanation. The product is important, not the process. That is why so many speakers during these two days have stressed the importance of communicating the results to decision makers, to the public, and to a knowledge-hungry information society. And to borrow another cogent line from Ken Prewitt, "Knowledge matters when persons other than the producers of knowledge are listening."

I believe that a national and a strategic research agenda can be jointly framed by reasonable people on both sides. It requires jettisoning some of our tribal folklore, some pathetic rationalization and self-satisfying stereotypes; it requires discarding at least two fallacies -- or, according to Guy Rocher, three or four.

I agree that neither government nor academe should set the research agenda unilaterally. Social scientists must have confidence in themselves and their product, and they must have some trust, as John Meisel and Sally Weaver indicate, in the people on the other side. But there is not just one other side. Business, the volunteer sector, and many others use the diverse products of social research. Unfortunately, too many of these users seem to have reached the conclusion that too many social scientists are engaged in irrelevant, low-level, or trivial research. (Maybe "Trivial Pursuit" is an older game in Canada than we think.)

Most social scientists agree that universities are the best place for social research, but they should not assume that good research cannot take place elsewhere. There are many examples of outstanding research funded by government outside universities, such as that carried out by the Geological Survey of Canada, the Bedford Institute of Oceanography, the Fisheries Research Board of Canada, and many others. Moreover, if university research is seen as the elegant but esoteric resident of an ivory tower and thus irrelevant to the needs of clients, the government and others might be expected to seek other options. Academics themselves might unwittingly be encouraging them to do so. Nevertheless, the emphasis on the free spirit of inquiry and criticism found in universities continues to be profoundly valuable to excellent research in problem areas.

For years I worked in a government research institute that did what it thought was pure research -- and the best research. Universities are not the only place in which excellence can flourish. However, some clients seem clearly unconvinced that universities are the best choice, and some favour cooperative research models. Does this allow the suggestion that social scientists should, for their futures, devote far more effort to the interface

between the university, public, and industrial sectors? Interfaces exist widely and one can quickly call to mind such professional fields as administrative studies, education, applied anthropology, social work, and criminology. However, the list is much longer.

Conciliation, cooperation, compromise, accommodation, respect, or tolerance for the other folk have been common themes in this conference. One welcomes that. I also detect an undercurrent that suggests academics should forgo their superiority complex, that the arrogance of a few, unintentional though it may be, is a prime barrier to the regeneration of the social sciences, and that the problem in social science is more one of its attitudes than money.

The social science community needs more, and more candid, self-appraisal -- stripped of dogma and the diplomatic verbiage that inhibits clear communication. We should study the ugly fact that we have critics, if that is not too strong a word, among the public, in politics, the media, business, unions, the volunteer sector, the bureaucracy, even on campus. But most assuredly we have friends. Presumably, none of us knows the ratio, but our recent history (this crisis of funding, direction, policy, and priorities) does not make me optimistic about that ratio.

Our violent critics are not, however, our worst enemies. The most lethal weapon the public can wield is indifference. There need be no theatrical gestures -- just a slow starvation, a gradual desiccation of the social science environment. It seems most of you here would agree it is already well begun and has already had a devastating effect.

Are researchers in general failing collectively to adjust? Is that the "stagnation or regeneration" theme of this gathering? It seems clear that the research infrastructure is breaking down: funding has long been stagnant or deteriorating, especially for the social sciences; the heavy workload of researchers is crippling achievement and jeopardizing the credibility and future development. I am acutely aware that few great projects on a national scale can be funded. These are only some of the reasons the word "crisis" appears. Despite all this, some of our shamans, more clever than wise, urge us to raise cattle, to be herdsmen still, as in the "good old days," even though the valley is filling up with crop farmers and the town market with vegetarian shoppers.

Perhaps many of the great pioneers we so admire in our disciplines would say our belief system, our tribal values as scholars, have become distorted. Maybe the old heroes were more concerned with relevance, communicating the results, improving society and contributing to solving problems "in the ordinary world" than we remember. Let me just list six works spanning the history of sociology:

Le Suicide
Caste and Class in a Southern Town
Middletown
The Hawthorne Study
French Canada in Transition
The Vertical Mosaic

When the great Eskimologist, Diamond Jenness, produced his five volumes on Inuit administration, I believe he did it from a scholarly sense of duty. Perhaps duty is an old four-letter word. I can accept that part of the old days as positive.

I have yet more questions. Do you wish to see me being interviewed in 1995 as a "born-again archaeologist" trying to explain to the person writing the final annual report of SSHRC why the tribe of university-based social scientists in Canada became extinct? (Kimon Valaskakis is more optimistic than I am

about this.) Could I simply blame the environment? Or would you advise me to add that we were too isolated, too inflexible, too certain of our importance, that we could not speak a simple language, that we could not manage change, or conciliate for our own good -- and that we refused to apply the lessons of the social sciences to ourselves. I spoke earlier of Napoleon's Imperial Guard at Waterloo. Surely none of us wishes to join the Imperial Guard in the Musée de l'Armée in Les Invalides. Rather, let me suggest that social scientists struggle in such a way that in 50 years this generation will be judged to have balanced the advancement of social sciences with its use to better the human condition. Is that not where this audience has been moving these past two days?

I accept André Raynauld's observation, "avant de transformer le monde, vaut mieux le comprendre correctement, sinon on courra à la catastrophe." André did say "vaut" not "faut." But if there is crisis, there is optimism too, and this conference, as David Cameron and others indicated, is among the reasons for optimism. We seem a little more pragmatic, more understanding, and we seem to be pulling together a bit more. There seems to be a little more self-analysis.

Despite my tentative tone, I have no hesitation in expressing appreciation and admiration to those who delivered the excellent papers that have provoked so much thinking and questioning at the conference. I thank the Science Council, its chair, vice-chair, and staff for this stimulating, enlightening and, I hope, symbolic occasion.

SUMMARY AND SYNTHESIS

John E. Trent

Social Science Research in Canada: A Summing Up and a Look Ahead

The first objective of this conference on social science research in Canada was to open a dialogue between representatives of different disciplines and different sectors of society. The preceding papers come from political scientists, economists, sociologists, and anthropologists, and from a psychologist, a criminologist, a historian, and an administrative scientist. All the contributors have a common social science background, but some of them have also held senior-level positions in the public service, politics, journalism, unions, regulatory agencies, research institutes, university administration, public advocacy, and consultancy.

Although this conference has not fully achieved its goal of bringing together producers, supporters, and users of social research, it has gone a lot further than other meetings in assembling people who have been active as producers -- the researchers creating social science knowledge -- and as users -- the policy makers in various parts of the public and private sectors. As a result, it has amassed a rare compendium of research knowledge linked to practical experience.

The second objective of the conference was to analyse the problems of producing and using social science research to deal with the issues confronting society. To this end, the organizers asked the contributors to consider three general questions:

1. How can the relationships between the producers, supporters, and users of research be improved?

2. Are the conditions for the production of fundamental research adequate and, if not, how can they be improved?

3. Are social scientists providing the policy-oriented research required by the major institutions and sectors of society?

An earlier paper of mine, which served as a background paper for the conference and which is included in this collection, assumed that the answers to the second and third questions depend on the response to the first -- offered some hypotheses to explain why the relationship between the producers, supporters, and users of research has been deteriorating and causing a reduction in research funding during the past decade. These explanations referred to the historical, social, and perceptual factors pertaining to social science research in Canada. They are as follows:

- There is no longer any consensus about who should be making decisions about research priorities and about which criteria should be used for those decisions.

- Because they use an instrumental, cost-benefit approach toward social science, government and business find social science wanting because of its diffuse and often imperceptible effects and the difficulty of measuring its rate of return.

- Social scientists have not learned how to convince government and the public of the value of social science research. Moreover, the use of the scientific approach, which is fragmented, specialized, and value-neutral, has hampered holistic research on social problems and resulted in narrow, esoteric communication patterns.

- The public expects Canadian social science output to be comparable

with that of the United States, yet efforts to provide an infrastructure for social science research in Canada are weak.

- Social scientists and educators fail to recognize the need to set research priorities and to concentrate resources.

- Because social science achievements become absorbed in common knowledge and because no professional group exists (as it does in the natural and life sciences) to provide a bridge between researchers and consumers, there is little public awareness of social science contributions.

- Because social scientists in the universities have few links with government, business, or private research institutes, those who need research often have to turn to nonacademic researchers whose work may be poorly designed and executed.

Assuming these explanations to be correct, improvements in the social sciences will require restructuring the relationships between those involved with research; concentrating research resources; focusing on conditions specific to Canada; and refining and diversifying research methods, content, and communication.

To test these hypotheses and to respond to the three general questions above, the work of the conference contributors has been grouped around five questions:

1. What are the requirements for creating effective social knowledge and concepts?

2. How well are the social knowledge requirements of society fulfilled?

3. What are the impediments to the creation and use of research for problem-solving?

4. What are the resources, requirements, and potential for social science research in Canada?

5. What major issues will require social research between now and the year 2000?

Each contributor was free to interpret the terms "effective," "knowledge," "use," and "issues" in his or her own way.

The aim of this paper is to summarize and synthesize the responses of contributors to the general questions and to see to what degree the original hypotheses need to be reformulated. It concludes with some theories put forward by contributors about the future development of social science research.

Section 1. Requirements for Creating Effective Social Knowledge and Concepts

Effective Social Knowledge

What is meant by "effective social knowledge"? Despite the fact that answers to this question came from three people with different careers, disciplines, and cultural backgrounds, there is an amazing degree of consensus in their definitions. The essence is that effective social knowledge is both a problem-solving aid used by social institutions and a means of criticizing them. It is useful to decision makers and to reformers, to institutions and to the public. It seeks not only to explain social problems but also to set them in their historical and structural context. The sum of social knowledge should be usable and should generate positive social benefits.

Social science must be evaluated against these bench marks, but it must

also be analysed as a total system of production and not simply in parts. What is unique about social science, as science, is that it is embedded in its subject matter and therefore juxtaposed against the social agenda. But effective social knowledge should not be confused with popular social knowledge. More often than not it will be unwelcome and uncomfortable. It may even be considered subversive and therefore opposed by those in authority. Social scientists may be seen as "bad news bears," as William E. Taylor puts it.

David Cameron notes that Marx's political and economic theory is as compelling an example of effective social knowledge as supposedly practicable ideas about the resolution of social ills.[1]

Although a definition of "effective" as "causing changes in social conditions" might be appropriate for the natural sciences, Kenneth Prewitt thinks that the products of social science are more likely to be analytical constructs and tools of observation that will inform the public agenda and in some cases alter it. But this effectiveness often occurs at the point of overlap between the research and social agendas.

As a result of his broad review of the literature, Gilles Paquet proposes that social science be stylized as a social system to provide society and government with valuable knowledge to help improve the productivity and welfare of the community. To be effective is to do the right thing as defined by the broader sociopolitical system. One can examine the effectiveness of the social system of social sciences as the product of three terms:

N = probability of new knowledge
U = probability that the new knowledge is usable
B = probability that the usable knowledge will generate positive private and social benefits

Performance would be gauged by the product N times U times B.

In case any of this composite definition be misconstrued, we can conclude with Prewitt that,

> To argue that an effective social science is one embedded, to a degree, in the priorities and purposes of the nation in which it is practised does not imply that social science can speak only to the powerful interests in society....Nor does the argument assume that only policy studies can lay claim to being effective social science. Research unconnected to the current array of policy options can be relevant to the broader agenda of issues facing society and can suggest policy options altogether different from those currently under consideration....Social criticism takes aim at practices within the society from which the criticism emerges.

The Best Conditions for Developing Social Research

What are the best conditions for developing social research for effective social knowledge? To speak of conditions raises questions concerning institutions, structures, and locale, as well as personnel, training, and funding. It also raises the issues of dominant paradigm, technology, priority setting, diversity, freedom, and relations with consumers and governments.

Gilles Paquet describes three ways of stylizing the social system of the social sciences. There is the corporatist view of social science as an autonomous enterprise, the consumer-good approach in which social science is only a mode of cultural expression, and the social-

overhead investment model in which social science provides valued knowledge. The autonomous enterprise represents the invisible college of researchers that is independent and self-evaluating and for whom the best strategy is to maximize the scientific system for the production of new knowledge. By contrast, a consumer good, like any other form of cultural expression, is a luxury in which affluent nations may choose to invest. Producers and consumers will, according to their interests, invest in limited aspects that may or may not be useful. Paquet, however, sees a growing trend away from these two extremes toward a view of social science as a social overhead that, because it helps social productivity, is a candidate for public investment and evaluation. Paquet's three models capture much of the current debate about research conditions.

Social science research requires a well-supported university sector. André Raynauld reminds us that, in Canada, not only is the major portion (82 per cent) of social research done in universities, but universities are also almost the only source of independent research, theoretical thinking, and basic research equipment. In addition, social science research cannot be imported -- the development of its concepts and models must be based on local conditions. Despite these two basic requirements, Canada ranks second-to-last among OECD countries for the support of university research, and its funding of the social sciences has declined for a decade. Although adequate funding is not the only prerequisite for the production of research, it is a prior and necessary condition.

For André Raynauld, another important condition for effective research is a plurality of policies and sufficient autonomy to explore society's needs. He believes the concept of free research must prevail for two reasons: first, because it is impossible to establish an order of priorities in fields of investigation; second, to counter government tendencies to monopolize the definition of collective research priorities; and third, to counter academic and administrative tendencies to reward conformity. It is necessary to struggle against the imposition of priorities and approaches on the whole of the research community. Raynauld presents a rational argument for adequate conditions for academic research.

Kenneth Prewitt lists two prerequisites for producing effective social knowledge: worthwhile subject matter and talented researchers.

> The more compelling the research agenda, the higher the quality of scholars who will be attracted; and the better the scholars, the more interesting will be the research agenda.

The search for scientific respectability during recent decades has greatly improved the technical and theoretical base of the social sciences. However, it has also largely detached them from some of the crucial issues of the period. Such detachment, Prewitt fears, will adversely affect the flow of new talent to the social science disciplines.

> I have suggested that research problems have to connect with -- and be seen to connect with -- an agenda that matters to persons outside the social sciences.

What social science really has to offer is a particular perspective, a type of knowledge not available from other intellectual approaches. Professional training in the social sciences provides society with a good part of its information. It also produces practitioners who have a reasoned scepticism toward

common sense and who use methodologies that search out information that might contradict personal experience. Self-interest in the outcome of research, if not eliminated, is at least brought to the surface. Also, by using categories, social scientists can analyse the complexity and interdependence (perhaps even the perversity) of human affairs.

To seek appropriate conditions for the production of new knowledge, Gilles Paquet analyses the process of production, that is, the structure and functioning of the social system of the social sciences. He finds a number of pitfalls that hinder the effectiveness of the social sciences. These pitfalls stem from a number of unconscious assumptions.

First, reliance on the outdated theory of the physical sciences that emphasizes mechanical models, quantification, and cause-effect explanations forces social science away from its basic data of values, purposes, inner experience, and meaningful units of behaviour.

Second, the use of a model of technological rationality in which knowledge flows in one direction only (from basic university discipline to application by public institutions) overlooks the feedback from applied knowledge, which helps to shape the research agenda.

Third, the isolation of the university from the workplace is based on a hierarchical separation of basic university researchers from social scientists who work on applied problems. This eliminates possibilities for creative exchange.

Finally, the research effort is personalized, fragmented, and fragile if not ephemeral, and most of the time it operates on a below-optimal scale. This is reflected in the absence of a network of institutions that embody a division of social science research labour and is caused in part by a funding strategy that supports projects and not researchers or institutions.

Paquet demonstrates Prewitt's contention that the search for scientific respectability has detached social science from its fundamental goal of serving society. Social science tends to serve itself. This is an underlying theme from all the contributors, whatever their points of view. They all insist on a better balance between efforts to advance the discipline and efforts to better the human condition, between attempts to understand and evaluate and attempts to be useful.

Transforming Research into Effective Social Knowledge

There is general agreement on what transforms research into effective social knowledge and concepts. Aside from sufficient funding for time and services to complete research, the key factors are summarized by David Cameron as public concern, effective communication and exchange, and problem or project orientation. He also suggests that looming social crises focus social science research on crucial social issues and social evaluation. William E. Taylor stresses the urgency of communicating research results to decision makers, the public, and a knowledge-based information society. He quotes Kenneth Prewitt:

> Knowledge matters when persons other than the producers of knowledge are listening.

Gilles Paquet offers a series of suggestions for turning these traditional desires into practical realities:

- Change the mental framework. Reject complete reliance on "normal science" as a ruling

ideology that ignores many central issues and provides technological rationality without the guidance of experience.

- Construct alternative approaches, one of which would be an epistemology of practice to develop a reflection-in-action that will use flexibility and pragmatism to span the gap between reason and practice. Between deduction and induction, a pragmatic philosophy of transduction has evolved. Allow these new types of research to be funded.

- Use reflection-in-action to trigger greater contacts between disciplines and to generate analogies and metaphors that will produce new, competing concepts at the interface of disciplines.

- Educate applied social scientists (or social technologists) to encourage communication between practitioners and basic researchers; to be to social science what engineers and doctors are to the natural sciences.

- Use more contracts instead of grants to increase the accountability and interaction of basic researchers and their sense of professionalism with regard to society as client.

- Find an appropriate role for government and strategic research grants as steering mechanisms for social research.

- Develop a network of research institutes to satisfy differing needs for basic, oriented, and applied research in user organizations, university teaching programs, and special institutes.

- Re-establish a forum to carry out the sort of indicative planning called for in the last three items, perhaps along the lines of the Senate Committee on Science Policy.

All participants agree strongly with the need to develop a broader-based, more balanced infrastructure for the social sciences. All believe that a broad range of research institutes is the most effective way to produce research that benefits from economies of scale, satisfies the needs of the consuming public, and creates links between users, producers, and supporters. André Raynauld thinks a broader university infrastructure of research chairs, research associates, and programs to permit temporary leave for research professors is the most promising path toward increased research and the progress of knowledge.

Section 2. The Social Knowledge Requirements of Society: How Well Fulfilled?

Research Typologies

Two reasonably complementary typologies of social research needs have been presented by Lynn McDonald and Jean-Louis Roy. McDonald proposes a fourfold typology involving instrumental and theoretical research, either of which may be tackled with a conventional or a critical approach. Instrumental research provides information and solutions for problems or programs. Theoretical, or "disinterested," research raises questions about how society operates. Both categories need conventional research that supports, or at least operates within, the status quo, as well as critical research that questions structural underpinnings. McDonald concludes with a plea for humility, diversity, and independence in research and a belief that progress stems from a diversity of

funding and sources of funding. She calls attention to the need to see the research enterprise from a holistic perspective:

> Researchers can benefit from work done by someone else by looking at it from a fresh perspective and by doing new things with it. As social scientists we need both instrumental and theoretical research, government research and research sponsored by the Social Sciences and Humanities Research Council. We need research by conventional social scientists in academic departments and by less conventional researchers (for example, researchers for advocacy groups), and we need research by people who have different perspectives. All of us have an interest in seeing all these types of research receive some attention because we all benefit from them in many ways.

Roy draws attention to the distinction that has arisen in recent years between contract research in which the goals, methods, and results can be regulated, and oriented research done by independent scholars in strategic domains of public interest. He thinks the latter is a necessary development and not harmful to the intrinsic values of free research.

> Certainly governmental interference must be fought. But the freedom of research and the independence of researchers cannot be absolute. Consideration must be given to new social needs arising out of new economic circumstances and to changes that are overturning the established order of things.

The Isolation of Social Scientists

Raynauld points out that social scientists have a disgraceful lack of empirical knowledge on just what research has been accomplished and how well it serves various public interests. Although none of the contributors believes that the social knowledge requirements of society are well fulfilled, Roy claims that in the past social researchers were much better connected to social groups and issues. He condemns today's social science researchers for being isolated, irrelevant, and too much linked to government. They are headed for regression and marginalization unless they pay attention to the social groups, voluntary associations, and service cooperatives, which, Roy claims, are the expanding domains of social interaction. In a withering observation, Roy warns:

> Rightly or wrongly, social science research is increasingly viewed as a vast, far-fetched, and incoherent exercise, an insular pursuit unrelated to the most pressing social needs the last decades of the century....Such a self-centred world appeals only to a captive audience.

Lorna Marsden adds to the list of social categories ignored by many social scientists by discussing those who refuse to address the problems of women in their research.

Social Research as a Basis for Decision Making

Turning to the question of how well the social sciences provide research for policy and decision making, the participants deal mainly with the governmental context. Richard Van Loon sets the tone by providing a strong declaration of the limits of both policy making and the impact of social science research. Social scientists must be realistic about their resources and potential and not heighten expectations unreasonably. Most social problems are intrinsically unsolvable, Van Loon maintains, since public policy can do little to change basic human behaviour. At best, government efforts may alleviate conditions, but they may also

create new problems. Social scientists should be cautious about the potential influence of applied research. Its role should be passive or advisory. It uses intellect to aid social interaction by identifying potential solutions and thereby defining issues and the range of choice. But it is not likely to determine policy.

> The social interaction that makes policy choice can and should be informed by social science advice, but it will never be determined by it. Political power is, after all, determined by many variables of which knowledge is only one. Personalities, emotions, money, ability to mobilize a clientele, and organizational resources will all play roles, perhaps larger than knowledge.

Despite this caveat, a great deal of social research is done by and for government. Lynn McDonald finds it is not done very well. No auditor general exists for effectiveness. Not only is there little evaluation of research, but research is not used to analyse government programs. Only descriptive kinds of studies are done to define a problem area and show that there is a problem. No systematic research is undertaken to see if programs into which money is being poured actually produce results. Another institutional constraint is that social science research threatens government, which often blames the messenger for bad news.

For his part, Jean-Louis Roy finds that social science research has been under the patronage of governments for the last several decades with a great deal of duplication and accumulation of facts and knowledge, but little practical utility. He wonders whether social scientists will be able to reorient themselves to take account of the decline of the state and the consequent demands for new ways to manage social needs.

Improving the Usefulness of Social Knowledge

How does one improve the usefulness of social knowledge for problem solving and decision making? First, there is considerable enthusiasm for the strategic grants programs' formula of hands-off support. There is also general agreement on the need for research institutes as the most promising producers of research. Gilles Paquet's proposals should also be recalled: training applied researchers, promoting interdisciplinarity and participatory research, and establishing new communications channels to users.

Several contributors noted the importance of Statistics Canada as the major furnisher of raw material for research, and called upon the agency to listen more to its users, particularly by establishing a consultative body of academic researchers. Lorna Marsden, who proposes more attention to womens' studies and the study of social change, calls for an end to sexist discrimination in universities and stresses the need to incorporate into theoretical and conceptual designs a recognition of the role of women and perspectives on the evolution of social norms and values.

With regard to government research, Lynn McDonald suggests more expenditure and greater diversity. If more research is to be done in government, there must be safeguards to see that money is properly spent, including independent evaluation, publication of results, and making data available to independent users. She also proposes that the effectiveness of research be increased by short-term commissions and task forces, in which established interests and biases are less ingrained and there is less fear of social science research.

Richard Van Loon believes that a more reasonable level of expectation will facilitate the role of research in policy making. Social scientists should recognize the fallibility of theory and the fact that the most solid research is about the aggregate behaviour of large groups of people rather than on the behaviour of individuals or small groups. He goes on to suggest that the limits to policy making and hence to research should be the iron law of political attention: no solution, no problem. He adds that policy failure should not be seen as personal and that research should include the evaluation of mistakes -- in a process akin to the social science technique of falsification of hypotheses. Such an approach would require that more government research be published. He concludes:

> Very often research efforts are considered to fail because they are expected to determine the outcome of the social or political interaction; social scientists are often blamed for what they did not and could not be expected to do.

Roy calls on social scientists to shed their ghetto mentality by establishing broader mechanisms for social consultation on the objectives of research, by creating a bank of researchers who are available to work for voluntary and benevolent groups, and by developing new methods of communicating research findings to potential users. Like Robert Clarke, he believes that workers, women, the poor, small farmers, Native people, the elderly -- the majority of the public -- are poorly served by public research.

Section 3. Impediments to the Creation and Use of Research for Solving Social Problems

With the exception of one basic disagreement, the cumulative experience of the contributors about the impediments to the creation and use of research for social problem solving leads to complementary and cumulative propositions. The disagreement is about the point of departure. Peter Meekison believes social science has already contributed greatly to knowledge in Canada and that the issue is to do more and better. Sally Weaver, too, makes the telling point that in her field (Native studies), public groups seek out the basic researchers in universities because of their previous track records. Robert Clarke, on the other hand, maintains that more social science research, as it is presently conceptualized and organized, might contribute little to the solving of social problems because of the lack of constituency, commitment, and sense of responsibility of university researchers who do not make underlying assumptions clear and who rarely do work that spans disciplinary boundaries.[2] Clarke states:

> The creation of useful social knowledge is impeded also by the widely held view that there is a single correct conclusion to be drawn from any social enquiry, and that this conclusion is unaffected by of the ebb and flow of interests surrounding a particular social phenomenon. This view obscures the essentially value-based nature of the explanations of social science.

A possible resolution to this debate might be to note that the contributors refer to two distinct types of social research: one the search for basic, analytical, background information, and the other oriented toward issues. It is particularly the latter that Clarke finds lacking. However, both styles of research provide knowledge for solving problems but at different levels of abstraction. At least, this appears to be the common position taken by the contributors when they analyse the practical impediments to the use of

social science research and the ways to overcome these impediments.

If one accepts that social science in Canada has produced and continues to produce useful background knowledge, what hampers better production? The first problem is one of perception. Peter Meekison agrees with Richard Van Loon that public expectations of social research are too high. Social research was expected to cure society's ills. But the problems that social scientists deal with do not lend themselves to immediate solutions and a certain scepticism has now set in. On the other hand, because social issues become politicized and demand an immediate response (or the appearance of one), neither the public nor politicians are willing to allow as much time for basic research in the social sciences as they do for basic research in the natural and life sciences. Meekison states:

> The belief on the part of government that solutions to problems can and must be found in a fixed period of time -- that results must be produced -- is perhaps one of the greatest obstacles to developing effective social science research.

Of course, there are also internal problems in the discipline, some of which are inherent, some of which are peculiar to Canada. One general tendency in the social sciences, pointed out by both Weaver and Meekison, is the development of grand theories on the basis of limited, unreplicated, noncomparative research data that cover short time spans. Too many generalizations are pseudoscientific, based on the shaky and questionable foundation of single studies. In addition, some social science concepts are imprecise, vacillating, and lack rigour. Another major difficulty for academics is the lack of time to complete research, especially comparative work that is time-consuming and costly. Often "learning moments" are lost when research must be dropped to return to teaching and university responsibilities. For this reason, academics find it difficult to produce under the constraints of immediacy.

The peculiarly Canadian problems start with the relative youth of the social sciences in this country. It is only within the last decade that most disciplines have been established in sufficient depth to permit most major research fields to be covered. Even then, the frame of reference of the many foreign-born and foreign-trained scholars has not been Canadian and this is only gradually changing.

Slightly shifting the focus, Guy Rocher proposes that one of the reasons the public does not accord great significance to Canadian social research is its lack of originality, "the intellectual colonialism of Canadian social science research." Part of this, he suggests, is due to its recent development.

> Canadians have borrowed models, theories, and concepts from abroad (mainly the United States and France)....They have tagged along behind their old professors and mentors. Canadian social sciences have not contributed anything of great importance to the theories of the social science disciplines. No Canadian is ever cited among the great authors who have left their mark on the development of the social sciences.

Rocher also points out two other causes of this failure. One is the pedestrian level of the research that he qualifies as lacking in depth, scope, and intellectual inspiration. The second is that social scientists have concentrated too much effort on the development of disciplines and not enough on the "social object," that is, the society that

surrounds them. Clarke agrees. He finds that "middle-class" university researchers do not have enough commitment to any constituency, partly because of their institutional position, which isolates them from pragmatic issues, and partly because of the academic research style.

With regard to the lack of "depth" referred to by Rocher, there is general agreement about the inadequacies of the university infrastructure for research. The contributors point to the stagnation in the hiring of university personnel, the cuts in university budgets, and the absence of support staff geared for research.

In addition, as Gilles Paquet points out, the limited industrial base under Canadian control and the consequent penury of private endowments has combined with project-oriented research funding to produce fragmented research and the lack of a network of research institutions. Says Lorna Marsden, "Canadian universities...have a set of bizarre and outdated organizational arrangements for social scientists...that might collectively be labelled 'post-feudal colonialism.' "

The participants stress the lack of a dynamic, modern, organizational base for research in universities, where services can be provided, research strength concentrated, and teams of researchers can interact. As a result of accumulated frustrations from low pay and poor resources, many researchers work on public policy or current issues through private firms or government contracts rather than in the public domain. In addition, Sally Weaver suggests that the in-house capacity of government departments to conceive and execute research projects is exceedingly limited and there are few social scientists within government with whom scholars can develop collegial relations.

In sum, it appears that although a title like "impediments to research" brings out criticism of the discipline, there is an underlying belief that the social sciences can make great contributions to society. The social sciences are seen as young and evolving. Their contribution will be improved by a better material and intellectual infrastructure, by more concentration on field work -- especially on Canadian social conditions -- and by the public's according them the same time to develop and produce results as it accords the natural and life sciences.

Impediments to the Public Use of Research Findings

What are the impediments to the public use of research findings? There appear to be three types of problems: research relationships, research perceptions, and communication procedures. With regard to research relationships, it is felt that some sectors of the public are poorly served in terms of the availability, orientation, and content of the social sciences. If knowledge is power, then power continues to accrue to institutionalized government and business, while such groups as women, the poor, farmers, workers, Native peoples, and the elderly generally lack research resources and tend to be excluded from the predominant paradigms.

Another problem is that, although most social science research in Canada is still done in universities, the academic system does little to encourage consumer-oriented research. Career rewards have been centred almost exclusively on the academic system, especially on publication in refereed journals (usually foreign). As a result, there is little incentive to contribute to the work of Canadian organizations or agencies. As Lorna Marsden says, "Universities are flirting with irrelevancy."

Relationships are also inhibited by technical conditions in client institutions such as the government. As Sally Weaver reports, although there are now more managers in government who understand social science research, few of them have experience in the particular areas being studied. It is also true that decision makers tend to look toward the natural and life sciences for solutions to public problems. Few seem to have the same faith in the social sciences or to recognize the social basis of public issues. A lot of research is contracted to justify preconceived definitions and solutions, or simply to give the appearance of addressing the problem. On the other hand, the bureaucratic protective instinct may lead managers to reject research out of hand because of its "philosophy," or to set up blocks to preliminary consultation when they do not know the specific direction they want to take. Organizational goals also supplant client's goals and research objectives, especially when operational planning and interpersonal or interagency conflicts hamstring research sponsors, or when research gets lost in bureaucratic complexities, or no lead time is allowed for projects.

A second type of impediment to the use of research is the perception that researchers and the users of research results have of each other. One survey cited by Lorna Marsden showed that of various authoritative groups, academics are consulted least by senior bureaucrats in Ottawa, not one of whom found academics to be a reliable source of advice. One reason for this sorry state of affairs, Peter Meekison and Guy Rocher suggest, is the ambiguity of the role of social scientists as advisers and critics. This can lead to an image of them as being either "insignificant or menacing." Academics presumably add to this image problem by their generally negative attitudes toward applied research (motivated, in part, by the reward system in universities) and their often adversarial attitudes toward government and business.

Such impediments to the use of research are certainly reinforced by problems in communicating research results to the public. It is well known that academics tend to write for themselves, that they ignore the electronic media (or are ignored by it), and that their writing is often so long-winded and full of jargon that it becomes unintelligible to the interested layperson. At an even more fundamental level, it is suggested that policy implications of research are rarely identified, so there is often no basis for communication. As noted earlier, the university reward system also inhibits efforts at public communication.

However, the other side of the communication barrier is seldom portrayed as explicitly as it has been by the contributors to this conference. Senior decision makers simply do not, or do not have the time to, read new books, articles, and reports. Almost all their information is predigested for them by their staff or the media, usually newspapers. Their circle of communication is limited. They are rarely aware of new research, even that done for their own organization. The communication vehicles of today, from which leaders absorb their current knowledge, are the executive summary and the crisp, authoritative newspaper digest, two art forms for which intellectuals have shown little interest or aptitude.

Improving the Organization and Communication of Social Research

A number of suggestions are made for improving the organization and communication of research for public use. Gilles Paquet stresses the need for an "epistemology of practice" by which social scientists will be in continuous communication with their subject matter

and the users of research. From this would develop a style of "reflection-in-action," what Sally Weaver calls "joint research with subjects." There is a call for diversity in applied methodologies, more replication of research, and more small seminars in which research producers and consumers can assess theory and practice together. Canadian scholars must recognize the immense social need for "mission-oriented research," while universities must make a place in their career patterns for contract research.

Robert Clarke wants researchers to be more specific about the social context of the objectives and orientations of their work. Guy Rocher wants Canadian researchers to reflect deeply about their subjects, especially the Canadian condition. In the long run, this would make their research much more socially pertinent. There is a general proposal for improving the organizational infrastructure of research by creating research institutes, both broad-based and sectorial. Such centres would provide the organizational foundations and impetus for multidisciplinary, problem-oriented team research, as well as improve research networks and direct contacts between researchers and sponsors.

With regard to communication, there are two types of proposals. The first concerns the communication of findings and the other stresses interpersonal contacts. As far as the dissemination of research results is concerned, it is clear that some specialized body such as the Social Science Federation of Canada must take on this task. Until there is some change in the university reward system to promote communication with the public by scholars, it is unlikely that many social scientists can be induced into going beyond what is required by their discipline. Even if academics were motivated, it is not certain that enough of them would master the difficult art of public communication, let alone specialized communication to decision makers. Some organization responsible for the social sciences must set up a group that can seek out the policy-relevant material in research, then translate and summarize it for the popular media.

Such broad dissemination must be coupled with more regular contacts between the producers, supporters, and users of research. Recommendations include seconding representatives from client organizations to research institutes, drafting working papers for clients so that ideas can be exchanged and modified, and ensuring that business, labour, government, and national association representatives attend academic conferences.

However, as Peter Meekison points out, all these proposals will flourish best in a climate of mutual respect between researchers and their public. The producers, supporters, and users of research must strive for conditions in which they can give due recognition to each other's competence and needs. These conditions include time and patience.

Section 4. Resources, Requirements, and Potential for Social Science Research in Canada

Research Personnel

Does Canada have a sufficient base of social science research personnel and are they sufficiently well equipped to provide knowledge for social needs and for decision making? The contributors agree that in Canada most social science disciplines now have the size, diversity, and level of scholarly maturity needed to make significant contributions to society.

John Adair and Denis Szabo, however, caution against overblown expectations. The broad-based establishment of the social sciences in Canadian universities is relatively recent. Criminology, for example, did not exist before the 1960s. The average age of researchers in the social sciences is still much lower than in other fields of study. Instantaneous results should not, therefore, be expected.

Time is required for individual researchers and the social sciences collectively to establish themselves and to provide the required knowledge base and research skills. Also, not all disciplines have had an equal opportunity to develop. This is particularly true of the para-professional disciplines such as administrative studies, education, law, criminology, and industrial relations, in which the number of trained research personnel and methodological paradigms is still small. Recently it has been recognized that the concentration on discipline-based development during the 1960s and 1970s has hampered interdisciplinary, problem-oriented research. Also, the attrition in social science departments and the lack of funding to employ young researchers is hobbling Canada's capacity to respond to rapidly developing subspecialties and to keep up with the changes in social science research.

Recent studies indicate that up to 75 per cent of social science scholars are actively engaged in research, but they can only devote approximately 25 per cent of their available working time to research. As Adair points out, these studies show that time for research is the most important resource in the social sciences, in which projects depend heavily on the principal investigator and in which there is little technical support. The chief obstacles to adequate research time are teaching and administrative loads, which have increased in recent years.

Adair also reports that funding for research in the social sciences is inadequate. For 1984/85 it is below 1970 levels. There are also more people to share the shrinking pie. Researchers complain that the funding processes do not match their needs. The Social Sciences and Humanities Research Council uses a project-based system that does not assure continuity of funding and demands too much time and effort to assemble the application in comparison to the resources received.

Denis Szabo reports that government-contract funding has suffered not only from budgetary austerity, but also from competition with government practitioners and researchers as well as the growth in government bureaucracy.

With regard to applied research, how well equipped is the social science community in Canada? Szabo's presentation provides a striking example of both the actual and potential contribution of social science research to public understanding of issues and to policy making. Nevertheless, the contributors generally stress the barriers, created by both the producers and the users of research, to the effective development of applied research. They enunciate two principles. The first is that applied research is blind if it is not inspired by fundamental research; in research, ideas come from basic science. The second is that knowledge cannot be detached from action. Social science must tackle practical problems. There is a need to develop such techniques as communication theory, game theory, and strategic analysis.

But attaining the ideal is not easy. Recent studies have shown that the majority of social scientists undertake their research to add to the knowledge base and are not interested in public

issues. Nor do academics pay much attention to the detailed applications of their research. Often good knowledge is available without it having been translated into a methodology for practitioners. At another level, it can be shown that social science has a trickle-down effect for informing public opinion.[3]

Nevertheless, as we have already seen, the distance between academia and the institutions of government and business was increased by the adversary culture of the 1970s. More recently, students have been pushing for applied courses in the social sciences because of the difficulties of entering the job market. But here we confront a conundrum for applied research. John Adair has found that researchers in applied areas were clearly the least likely to be involved in research because of competing professional responsibilities. Those who are interested in research are not necessarily interested in applied problems. Thus, from a research point of view, students who want a university background that will suit them for the job market are likely to be attracted to teachers with low research activity. Adair fears the ensuing imbalance to research.

However, by no means all the problems in developing policy-oriented research can be traced to the academics. Denis Szabo demonstrates that in his field, an earlier, almost idyllic, harmony existed between the government and university researchers. There was adequate funding, professional interest on both sides, and a respect for the division of labour dictated by the competence and prerogatives of each profession.

> The channels of communication for people and ideas were open and unobstructed. Young government officials adapted the ideas, theories, and concepts they had learned in the university to the government research services. The directors of such services were often more like deans than administrators serving a political power. Weber's criteria for a legitimate bureaucracy (the application of rational methods, the use of scientific information to justify decisions, and so on) were developed during this period.

Denis Szabo claims that this situation has been reversed by the triple pressures of tight budgets, the involvement of government practitioners, and the growth of the bureaucracy. Although a competition for funds has grown up between government policy makers and researchers on the one hand and university scholars on the other, the real barrier is an analytical approach that opposes "problem thinkers" to "systems thinkers." At the same time, the simple growth of research administration in public bodies added to delays, rigidities, complexities, and difficulties in communication. This situation has lead to stagnation, inefficiency, and the incapacity of the system to accomplish its own functions. Along with other scholars, Szabo arrives at the following explanation,

> The reason for this paradox lies in the particular rationale and activities of institutions [of social justice], which undermine the overall objectives of the system [of social protection] in the name of corporate, individual, and special interests.

Helping Social Science Realize its Potential

What is required to help social science realize its potential in providing knowledge and concepts for public consumption? The answers touch on epistemology, resources, and relation-

ships. Vincent Lemieux believes that to respond to the question, one must place research in its current social setting. Many recent studies lead to the conclusion that the dominant force of this age is continuing rapid social change based on the high-technology revolution in telecommunications. The implication for research is that the Newtonian mechanistic world is giving way to one of systemic communication. In this world the former energy model of relations of power must be replaced by a communication model in which resources and energy are modified by their contexts.

> The model of an orchestra, proposed by Yves Winkin, is more appropriate. In this model, communication is conceived as a system of multiple channels through which the social actors play at all times, whether they want to or not. Everyone is part of this orchestra, in which all members play by tuning their instruments to those of the other members.

Structurally, society will be based on the development of connections between networks rather than planned action in pyramid-like organizations. Research will have to deal with pragmatic situations and help develop the consciousness of human groups. Lemieux therefore poses as a basic necessity the establishment of a new dominant paradigm founded on a social science of communication that will draw attention to a new notion of causality that is multiple, interactive, and systemic.

Denis Szabo adds the requirement for more interdisciplinarity -- an interdisciplinarity that would go beyond the social sciences and include the natural and life sciences. He notes, for instance, the links between criminology and biology. He also calls for cooperation between social scientists and policy makers to do more social experiments. There must also be a renewed attack on the fundamental epistemological problem of handling both positivist and normative concerns in research.

At the concrete level, there must be more funding. John Adair's research shows that well-funded researchers are active researchers. The most critical need is for the reinstatement of research time stipends.

> Without time released from teaching, research will continue to be a quarter-time activity of most scholars. With some attention to this problem, the research capacity of all disciplines could be significantly improved.

Adair also proposes diversifying funding sources. He suggests that the Social Sciences and Humanities Research Council support basic research while government departments and agencies fund applied research. This might even improve the delivery and communication of research. Adequate funding must also be made available for universities. Without the ability to employ young scholars, the social sciences in Canada will not be able to keep up with developments in the field and will not have the benefit of new approaches and ideas.

Vincent Lemieux argues that university disciplines must be opened up by greater contact between the various research communities and between researchers and society, not just to respond to social demand, but to generate the stimulation and inspiration that come from the tensions that arise on the frontiers between disciplines and in social action.

Although Denis Szabo calls for cooperation and accommodation between the producers and users of research, he is sceptical about their automatic achievement because of the competition between established interests. The problem of entrenched interests is aggravated by rivalry between different methodological approaches and differing normative models of society.

He reports on a recent study[4] that categorizes the schools of thought concerning the initiation and execution of planned social change. The approaches are problem solving; research, development, and diffusion; social interaction; and coercive power. Liberal academics are comfortable with the first three but not the last one. Szabo suggests that the defence mechanisms of corporate interests (still within the liberal approach) can be dealt with by improved communication, specifically by involving researchers and professionals as well as public representatives in the application of government policies. The universities have the intellectual resources to take up the theoretical and methodological challenges of dealing with concrete social problems, but decision makers must recognize that the inadequate differentiation between applied policies often results from a lack of adequate information.

Section 5. Issues Requiring Social Research to the Year 2000: A First Look Ahead

Almost all the contributors make at least passing reference to the types of social issues that most urgently require attention from social scientists. Some basic considerations bear repeating. More attention needs to be paid to Canadian problems both nationally and in an international context so that social scientists can be seen to be making a greater contribution to the adaptability of Canadian society and institutions. Meisel uses the Canadian example of federal-provincial relations to illustrate the point that there are many social issues that are likely not only to continue but to resurface as priorities as society evolves.

Problems raised by swiftly changing technology and its economic, cultural, and political effects are on the minds of all participants. Large-scale unemployment, careers for young people and women, new forms of employment and leisure, the capacity for organizational adaptation, and the need for new mechanisms for redistributing wealth are but some of the attendant issues. In particular, research on social adaptation will have to be oriented to serve social groups, including those that are excluded from the powerful institutions of labour, business, and government. Research should be increasingly focused on reducing the atrophy brought about by traditional forms of confrontation.

If social science is to meet this agenda of social needs, it will have to develop a more balanced output between practical and critical analysis, and between research for the advance of the scientific disciplines and research for social betterment. Although individual social scientists may concentrate on one or other of these elements, the social science community as a whole must develop institutional mechanisms to ensure an evolving balance between research for social understanding, for situational evaluation, and for immediate application.

In this section on future research needs, the contributors were asked three questions: What are the major issues confronting us? What kinds of research are required? What changes in social science production are necessary to respond to the needs for knowledge?

John Meisel, Greg Mason, and Kimon Valaskakis are so clear in their responses that their answers can be summarized schematically as in Figure 1.

The answers to the third question on required changes in social science production elicited two types of proposals -- one dealing with epistemological issues and a second referring to organizational improvements in the infrastructure. It must also be stressed that the contributors have not attempted to provide exhaustive lists of emerging issues. Rather, they have chosen known problems that illustrate their hypotheses about requirements for change in the social sciences.

Commentary: Looking Ahead

Context

The hypotheses proposed at the beginning of the conference and reiterated at the start of this chapter have found a general resonance in the presentations of the contributors. The hypotheses have, however, been placed in context, broadened, structured, and elucidated. It is generally agreed that there is a great need and potential for social science in research in modern society. The social sciences provide much of the basic knowledge for social thought and action in the 20th century. However, it is also agreed that the potential of social science is inadequately realized at present. For the most part, the public absorption of social science research comes only after a lengthy trickle-down process. Relatively little social science knowledge is directly used in making decisions. The relationships between researchers, policy makers, and the public are poor, and communication between academia and society is almost nonexistent. Both epistemological and organizational innovation are needed if the social sciences are to achieve their potential.

The fact that the social sciences have not realized their potential is partly due to the relatively recent development of the social sciences in Canada and to the unrealistic expectation that they could provide instant solutions for social problems. Social science can never be expected to do more than illuminate the path of decision making. Nonetheless, there are unnecessary obstacles to the use of social science research that have been built into the Canadian academic system. Because a high proportion (more than 80 per cent) of social science research in Canada takes place in the universities, this society is more dependent on academically initiated research than are other countries. However, this research has been found to be scientifically fragmented, borrowed from foreign sources, lacking in infrastructure and organization, uninspired, short-term, and excessively oriented toward the disciplines rather than toward the analysis of social problems. Put the other way around, Canada lacks social research that is interdisciplinary, applied, cumulative, Canadian, and profound.

This concluding section attempts to compile and comment on the proposals that have been made for epistemological and organizational developments intended to improve the social utility of research.

The first step is to set the social sciences in the context in which they must evolve in the near future. I have already outlined the social context. Fuelled mainly by the high-technology information revolution, society will continue to change rapidly and to become ever more complex. The mechanistic Newtonian paradigm is rapidly being replaced by a communication paradigm of systemic interaction, now that telecommunication permits instant information transfer around the

Figure 1. Agenda for Social Research to the Year 2000: John Meisel

A. Major Issues	B. Topics for Research	C. The Internal Agenda (Research Methods)	D. University/Society Interface*
Scientific, technological, and social change	Nonmedical factors in human health, including: • nutrition • environment • exercise • changing age structure	Developing techniques for translating knowledge into improved conditions for health Analysing economic implications	Improve methods of policy implementation and priority determination Promote mission-oriented research Examine the effectiveness, organization, and funding of: • univesity research • government in-house research • research contracting procedures • multiple funding councils • research institutes • commissions • private-sector research
Changing role of women	Personal, social, and monetary costs and benefits of new roles	Developing nonsexist models	
Biotechnology and genetic manipulation	Tracing social consequences Establishing socio-political mechanisms for ensuring social good	Establishing links to: • normative concerns • other disciplines • national dimensions Learning: • self-criticism and policing • to articulate values	
Information technology, telematics, and computers	Impacts on • personality • language • communication • social reference points • education • employment • socialization of the work ethic		
Survival of the species; threats from: • arms race • environmental degradation • North-South disparities • international tensions • imbalances in populations and food distribution	Processes of accommodation Conflict resolution Improvement of political institutions and practices	Developing techniques for creating attitudinal changes	

* Note: items in this column do not necessarily directly correspond to items in the first three

Figure 1 (cont'd). Agenda for Social Research to the Year 2000: Greg Mason

A. Major Issues	B. Topics for Research	C. The Internal Agenda (Research Methods)	D. University/Society Interface*
Technological change, including its effect on: • jobs • Canada's economic competitiveness	Institutional mechanisms for ensuring equity in distributing resources and wealth State vs. private market as agents of distribution	General need for social data to draw distinctions for making equity comparisons, including: • more consistent approach to data collection: researchers must demonstrate capability to collect and archive information • consolidation of questionnaire design • improved methods for validating data and continously redefining concepts and information base	Securing access to government administrative data for use in social programs Developing at least one major, longitudinal, panel data set on income dynamics
Changing role of women	Distribution of job skills within the population and among men and women Equal pay for work of equal value Distribution of work and income within the home		
Aging	Pensions • funding • intergeneration distribution		

* Note: Items in this column do not necessarily directly correspond to items in the first three

Figure 1 (cont'd). Agenda for Social Research to the Year 2000: Kimon Valaskakis

A. Major Issues	B. Topics for Research	C. The Internal Agenda (Research Methods)	D. University/Society Interface*
Managing disruption resulting from technological change and growth of the information economy	Studies of paradigmatic shifts, including: • third industrial revolution • new interfaces between the State and the private sector • human-centred development • new social orders that transcend traditional capitalism and socialism Consequences for individuals and society of: • jobless growth • changing methods of production • changes in government's power and responsibility • artificial intelligence • subjectivity and ephemeralization of wealth Redistributing gains and losses, sharing risks New economic theories of development for an interdependent, post-industrial world	Develop new concepts of: • employment, wealth, and leisure • the potential political spectrum • the roles of the State and the private sector • culturally integrated development • "projets de société" (normative thinking about desirable futures)	Overcome the marginalization of the university as a result of increasing competition from corporate and governmental teaching and research programs. Techniques may include: • rewarding interdisciplinary work • integrating scientific approach to the future into the university curriculum so universities will stop acting as a rearview mirror • refusing to sacrifice relevance in favour of excessive rigour

* Note: Items in this column do not necessarily directly correspond to items in the first three

world. Society is increasingly composed of autonomous interacting networks with regional and sectorial bases.

These changes in knowledge and social structure have profound implications for research. The notion of causality, instead of being unidimensional and unilinear, will be multiple and will cause chain reactions. It will go beyond the relations of power generated by resources and energy to include the context of interaction and communication. As Vincent Lemieux reports, the model to be used is that of the orchestra: everyone plays by harmonizing with the others.

With a social structure increasingly based on autonomous networks and their interaction and reciprocity (often erroneously called interdependence) and in which new structures of coordination must replace large, planned, pyramid-like organizations, there will be a call for discrete, pragmatic knowledge rather than abstract theory and models for solving problems. In such a social system, universities will have to be interactive rather than isolated. This context fits well with the new paradigms of social order, development, production, and world crisis that were elucidated by Kimon Valaskakis and John Meisel.

Denis Szabo, however, reminds us that we live in a world in which coercive power is still an important if not dominant factor. Liberal social scientists would do well to keep this in mind while elaborating the new paradigm of the social science of communication called for by Vincent Lemieux.

A second and more concrete context for the development of the social sciences would normally be the society in which they are evolving. Perhaps it is indicative that no mention of the Canadian sociopolitical and economic context was made by the contributors. They did, on the other hand, call for much greater attention to Canadian problems and conditions, so their own oversight may simply be a case in point. Clearly, the provincial and linguistic division of jurisdictions, the close proximity to the massive bulk of the American culture, and Canadian evolutionary tradition, must have an impact on the evolution of research in this country. No doubt this will be further explored.

A third context consists of the limitations and conditions imposed by the peculiar nature of the social sciences themselves. Although much social science is still the work of individual discipline and creativity, seen in another light it may be considered a system of collective intellectual production (keeping in mind Lemieux's model of a system of networks). Although individual production predominates, the social sciences are certainly judged collectively -- probably because they are financed collectively by the public. As we have seen in the preceding papers, their social utility is also judged collectively.

As a collective system of knowledge production, the evolution of the social sciences can be seen as the continuous working out of a series of tensions that result from the unique subject matter. These ever-present tensions explain the debates over the concept of the public utility of social science research. Some of these tensions are summarized here as a way of synthesizing these debates and calling attention to the inherent limits of proposals for rendering social science more publicly accountable.

The uniqueness of the social sciences comes from the combination of its methodology and its subject matter. Thus the first tension is between rigour and relevance. Social science is that form of social knowledge that attempts

to be empirical, factual, and, to the greatest degree possible, objective. To attain this end, social scientists have borrowed the scientific approach based on the model of the natural sciences. Recently, this has evolved into behaviouralism. As social scientists have tried to improve their methodological foundation, the research has become increasingly discipline-oriented, specialized, fragmented, partial, mechanistic, and value-neutral. On the other hand, the social subject matter calls for approaches that deal with the variability and reactiveness of human beings and that can cope holistically with real social problems and total social communities.

Needless to say, both the desire to advance the disciplines and the call for socially-relevant knowledge are legitimate. The problem appears to be that the scholars who control research production have corporate interests that tend to offset the demand for relevance. There also appear to be many scholars who ignore the probability that linking research with problem solving will produce better methodology. Conversely, as calls for relevance become more strident, mechanisms will have to be found to ensure the advance of scientific knowledge through basic research.

It is clear that social scientists must continue to develop their disciplines, their scientific methodology, and their capacity to develop empirical knowledge for teaching and research. In addition, some sectors of basic social science research have to be independent, if not isolated, if they are to retain their capacity for fundamental, countercurrent, critical, far-sighted research. Unfortunately, there has not yet been any profound analysis of the categories of research that require such autonomy and the structures that can provide it. No doubt, the typology proposed by Lynn McDonald (see her paper and section 2 above) will be instructive in this regard.

We have seen that there has been a growing schism between the producers and consumers of social science research. This is the second tension. To a certain degree this antagonism is normal and we should not be surprised at it. In business there is the expression "all b---s are clients, all clients are b---s". Both researchers and users have their own objectives, methods of work, and timetables. Nevertheless, there are many ways to mitigate these tensions: through better contacts, cooperation, and recognition of each other's areas of competence.

However, the nature of the goal -- the quest for objective (or at least empirical) knowledge by social science -- sets its own priorities that supersede those of producers and consumers. It explains the third tension -- that between objectivity and social utility. Here originate the strident reactions to strategic grants and attempts to orient the funding of the Social Sciences and Humanities Research Council. This tension explains the disagreements among researchers and contractors concerning the direction of research, its methodology, and its publication, and helps us to understand many social scientists' lack of interest in applied research. The search for truth, unsullied by narrow interest or passing concerns, is a hallmark and leading motivator of social science research.

Some schools deny the goal of objectivity in the social sciences. They claim that all research is value-laden and that researchers should acknowledge the relativity of social science knowledge while making it accessible to all sectors of society. The conclusion is commendable, but the hypothesis is wrong. Certainly, research resources should be made more available and

better directed. But to deny the striving of social science research for objective, empirical knowledge is to deny its raison d'être. We know that if research is conducted for a specific constituency, it will become oriented to that constituency. The aim of social science is to try to develop methodology that goes beyond, or at least corrects for, constituency.

A fourth tension arises from the habit of funding social science research in Canada through public funding councils. These councils become "the spoilers" in the system. They are not end-use consumers and therefore they spoil the usual rationalities and responsibilities of a normal producer-consumer relationship. Although composed of both social science and public representatives, they usually become captured by the dominant research interests. It is time to analyse the organization of research funding to see if the most rational use is being made of available funds and whether there are better ways to "deliver the product" -- all this within the limits of the publicly useful objective of protecting independent research.

The fifth tension is between goals and interests -- between scholars on the one hand, and practitioners and institutional researchers on the other. Because of their differing goals, scholars tend to be "systems thinkers" whereas government, business, and labour researchers tend to be "problem thinkers." Because of their differing interests, the gathering of empirical information sometimes conflicts with policy goals, while a problem-solving attitude tends to blur disciplinary boundaries in academia. When these conflicting objectives become centred in organized interests, organizational goals displace efforts to produce socially relevant knowledge.

Two further tensions arise within the scholarly community itself. Because social science seeks to discover universal generalizations, it tends to ignore the Canadian context in which the knowledge is developed and the need for social scientists to provide interpretive information for Canadians. Tensions therefore arise between Canadianists and internationalists/comparativists. Together with other writers I have suggested that generalizations must be developed in a local context before they can be compared globally.

A similar tension has arisen between proponents of disciplinarity and of interdisciplinarity. Both camps have institutional interests in teaching and research that tend to exacerbate the conflict rather than facilitate flexible choices.

Providing Knowledge for Public Consumption

The above considerations outline the context and the domain of proposals for improving the public utility of social science research. The conference participants agreed that there must be a new equilibrium between free and oriented research, between research for the advancement of knowledge and for direct public consumption. They also agreed on the need for epistemological and organizational improvements. Their proposals are summarized below.

1. Universities are badly organized and funded for the production of research. They lack the structures, the funding, the support staff, and the influx of young scholars needed for the social sciences to fulfil their potential for social knowledge production. Overworked staff have too little time to do research. A vigorous case can be made for increased support -- not only because of the underused potential of the social sciences, but also because the social sciences have received far less funding

than have the natural and life sciences (an imbalance that gains significance from the fact that the issues facing society are mainly social in nature). Productivity can be improved by research time stipends, research chairs and associateships, research institutes, and the funding of research careers, not just projects.

Given conditions of funding and structures that protect independent research at the same time as they stimulate oriented research, social scientists should be able to get on with the job of going beyond the models of the physical sciences to develop systematic, interrelated methodologies such as Gilles Paquet's "epistemology of practice" and "reflection-in-action." They would make renewed efforts to develop basic data, knowledge, and concepts anchored in the Canadian experience. Provided they are given adequate time to learn, they would engage in more profound analysis.

Additional funding could ensure that recently trained women scholars are admitted into the field, where they would promote the development of nonsexist models. But it will take more than time and money to ensure that social science research becomes interdisciplinary, longitudinal, and conceptually sound.

2. If university social science research is to become more publicly useful, there will have to be improvements in orientation, accessibility, and communication. Social scientists must become receptive to the new paradigms stressed in recent pages. They must focus on the Canadian population and its social institutions. They must give special attention to the development of an applied methodology and orient themselves toward the social agenda.

But all these measures will not be enough if social scientists continue to make research available only to each other or to governments and corporate clients. Social science research must be made accessible to all sectors of the population and their representative groups. The establishment of a bank of researchers to serve national and community organizations has been proposed. Formal arrangements must be made for the interpretation, synthesis, and communication of research results, and their application to social problems.

3. Many suggestions aimed at improving the relevance of research and its applicability to social issues have been made. They include continuous consultations between the producers and the consumers of research at all stages of the research project and the application of research results; the development of a popular social science magazine; the organization of working seminars on policy problems; the secondment of practitioners to research institutes, and, most important, the development and adequate funding of interdisciplinary, community-oriented research institutes. It has been suggested that changes will have to be made in the university career and reward system to encourage researchers to undertake more interdisciplinary, publicly oriented research.

4. The poor relationship between the producers, supporters, and users of research is clearly at the root of the shortage of social science research for public consumption. Social scientists have been producing for a small, highly specialized audience. There has been no coordinated attempt to communicate with the public. There are no established institutions or procedures for making contacts. As William E. Taylor once said, "Business and government do not ignore social science results, they just ignore social scientists." The

attitude is, unfortunately, reciprocated. In our complex, fast-moving, and demanding society, opportunities for productive interaction among the producers, supporters, and users of research cannot be left to chance: they must be created.

Instead of reiterating the litany of recriminations it may be more instructive to end this discussion by recalling Denis Szabo's strategy for linking the worlds of academia and practice. It combines the four strategies for planned social change: problem solving; research, development, and diffusion; social interaction; and coercive power. As Szabo has suggested, it is naive to expect that we will ever get all producers, supporters, and users of research to agree about which of these approaches to social development should receive priority at any one time. Much will depend on the agendas and methods of those in power. But we can expect the three groups to listen to each other. We can establish mechanisms for improved communication. We can work toward marrying the liberating force of knowledge to the reality of political power and entrenched interest. We can also create occasions for active cooperation and promote mutual respect among the producers, supporters, and users of research. That is what the conference and these proceedings are about. The next step is to involve researchers, professionals, and policy makers together in the development and application of social policies.

Notes

1. Cameron also says he assumed that social utility is the primary focus of the conference. This is a misreading of our intentions. The questions posed to participants were meant to be in value-free language that would force authors to fill in the content and definitions -- which is exactly what they all did.

2. Like David Cameron, Robert Clarke states an unfounded assumption about the actual organization of the conference. "I conclude that I was probably invited here to reiterate a theme. This theme is that if only social scientists had more money to do social science research, the field would not now be facing what is referred to as a crisis." In fact, the conference was organized to ascertain facts and ask questions about the value of social science research and whether it merited or needed additional resources, and if so, in what form? It was to these questions our diverse participants responded.

3. See, for instance, B.G. Rule and J.G. Adair, "Contributions of Psychology as Social Science to Canadian Society," Canadian Psychology 25 (1984): 52-58.

4. K.W. Johnson, et al, "A Change Strategy for Linking the Worlds of Academia and Practise," Journal of Applied Behavioural Science 19 (1983), 2.

CONFERENCE AGENDA

Wednesday, 3 October 1984

18:00 Reception, Delta Ottawa

18:45 Dinner

20:00 Welcome by Dr Stuart Smith, Chairman, Science Council of Canada

20:15 Keynote speaker: André Raynauld, Professor, Department of Economics, University of Montreal

Thursday, 4 October 1984

9:00 Opening Remarks: Vaira Vikis-Freibergs, Conference Chairman, and Vice-Chairman, Science Council of Canada

9:15 Panel No. 1: Requirements for Creating Effective Social Knowledge and Concepts

Chair: Elinor Ames, President, Canadian Psychological Association, Department of Psychology, Simon Fraser University

Panelists: David Cameron, Assistant Under Secretary of State, Education Support
Gilles Paquet, Dean, Faculty of Administration, University of Ottawa
Kenneth Prewitt, President, Social Science Research Council, New York

10:00 Discussion

10:30 Coffee Break

10:45 Panel No. 2: The Social Knowledge Requirements of Society: How Well Fulfilled?

Chair: Dorothy Phillips, Director, Behavioural Research and Evaluation, Department of Communications

Panelists: Lynn McDonald, MP, Broadview-Greenwood
Jean-Louis Roy, Director, Le Devoir
R.J. Van Loon, Professor, Faculty of Administration, University of Ottawa and Royal Commission on the Economics Union and Development Prospects for Canada

11:30 Discussion

12:15 Lunch

13:30 Panel No. 3: Impediments to the Creation and Use of Research for Social Problem Solving

Chair: Gordon Robertson, Past-President, Institute for Research on Public Policy

Panelists: Robert Clarke, Executive Director, Canadian Centre for Policy Alternatives, Ottawa
J. Peter Meekison, Vice-President (Academic), University of Alberta
Guy Rocher, Professor, Centre de recherche en droit public, University of Montreal
Sally M. Weaver, Professor, Department of Anthropology, University of Waterloo

14:30 Discussion

15:15 Coffee Break

15:30 Guest speaker: The Honourable Lorna Marsden, The Senate

Friday, 5 October 1984

9:00 Panel No. 4: Resources, Requirements, and Potential for Social Science Research in Canada

Chair: Milton Freeman, Professor, Department of Anthropology, University of Alberta

Panelists: John G. Adair, Professor, Department of Psychology, University of Manitoba
Vincent Lemieux, Professor, Department of Political Science, Laval University
Denis Szabo, Director, International Centre for Comparative Criminology, University of Montreal

9:45 Discussion

10:30 Coffee Break

10:45 Panel No. 5: Toward Year 2000: Issues Requiring Social Research

Chair: Pierre-Paul Proulx, Acting Executive Director, Canadian Labour Market and Productivity Centre

Panelists: Greg Mason, Director, Institute for Social and Economic Research, University of Manitoba
John Meisel, Professor, Department of Political Studies, Queen's University
Kimon Valaskakis, President, GAMMA Institute, Professor, Department of Economics, University of Montreal

11:30 Discussion

12:15 Concluding Remarks: William E. Taylor, Jr., President, Social Sciences and Humanities Research Council